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CHITECTURE

RS. ARTHUR BELL

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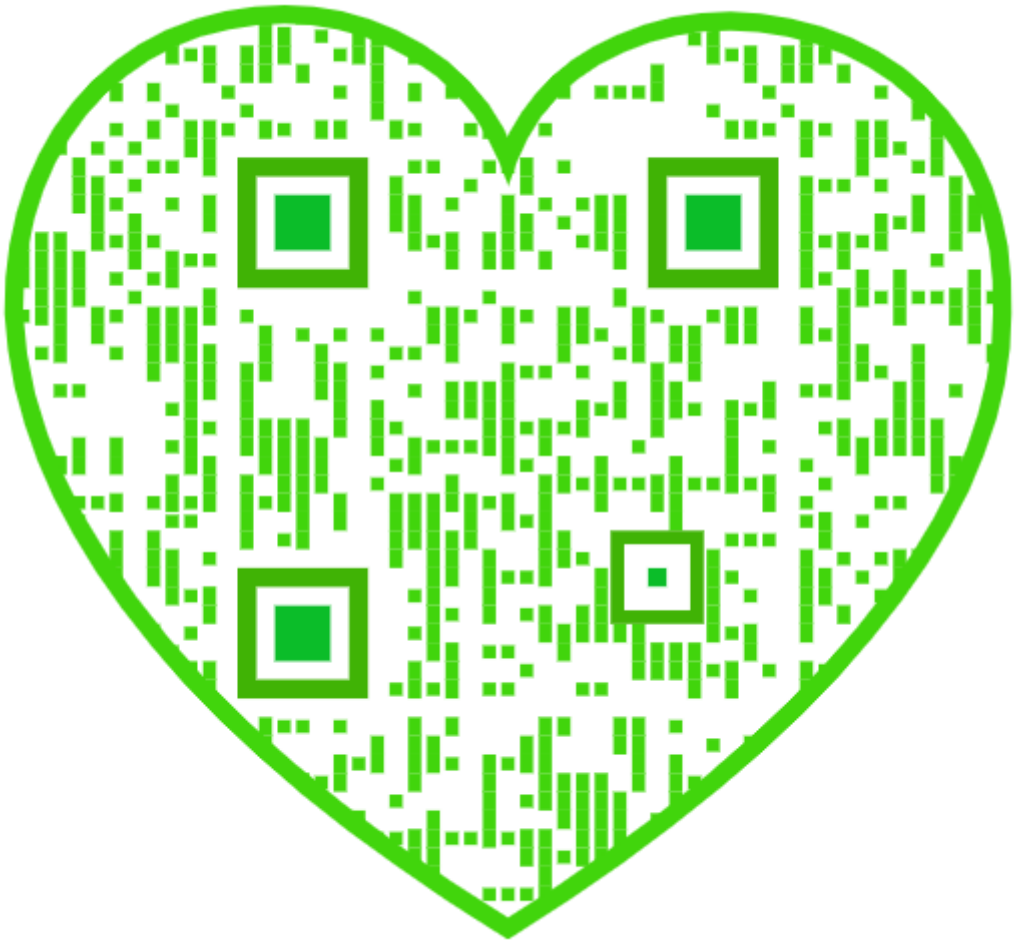

ARCHITECTURE

By MRS. ARTHUR BELL

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INTRODUCTION

WHAT ARCHITECTURE IS—MATERIALS EMPLOYED—DEFINITION OF DISTINCTIVE FEATURES OF THE TWO MAIN STYLES, TRABEATED AND ARCUATED

It is only when a building entirely fulfils the purpose for which it is intended and bears the impress of a genuine style that it takes rank as a work of architecture. This definition, exclusive though it at first sight appears, brings within the province of the art every structure which combines with practical utility beauty of design and execution, from the humblest cottage to the most dignified temple or palace. Suitability of material and harmony with its surroundings are among the minor factors that give to a building vitality of character and contribute to its enduring value, a value enhanced by its reflection of the needs and aspirations of those by whom and for whom it was erected.

Wood appears to have been the earliest material used for the building of a home when out-of-door dwellings took the place of the caves that were the first shelters of primitive man. At Joigny in France there still exist examples of what are supposed to be the most ancient of all such dwellings, namely circular holes, locally known as *buvards*, in which the trunk of a tree had been fixed, the branches plastered over with clay forming the roof of a simple but rain-proof refuge. Huts of wattle and hurdle work dating from prehistoric times have also been preserved, some rising from the ground, others from platforms resting on piles sunk in the beds of lakes. These were in their time superseded by stronger structures, with walls made of squared beams piled up horizontally and fastened together at the corners with wooden pegs; the roof being formed of roughly sawn planks. Out of such primeval houses as these were evolved in the course of centuries the picturesque half-timbered cottages of mediæval Europe and the quaint wooden churches of Norway such as the characteristic one at Hitterdal.

Limestone, granite, and sandstone were used for building at a very remote period in much the same way as wood, large blocks, fresh from the quarry, of all manner of different shapes, being piled up horizontally or stood on edge, no cement being

employed, though in certain cases crushed stone was used to fill up the spaces between the blocks. To walls or buildings of which courses of undressed stone were the only materials, the name of Cyclopean has been given because of the erroneous belief that it was originated by the Cyclopes, an imaginary race of giants, supposed to have lived in Thrace, a province of ancient Greece.

Bricks, that is to say, dried blocks of clay, were used at a very early date as a supplement to or substitute for wood and stone for building purposes. The most ancient bricks were not subjected to artificial heat but were simply exposed to the sun, and even when kiln-baked bricks were introduced they were often employed merely to face the older variety. Spacious and lofty buildings consisting entirely of bricks were erected at a very early date in Assyria, Persia, and elsewhere, and some of the most noteworthy architectural survivals of the Roman Empire are of the same material.

The main features of a building are determined by the shape of the walls or the mode of arrangement of the pillars that take the place of walls, the way in which the roof is constructed, and that in which the openings of the doors and windows are spanned. The earliest roofs were flat, and the most ancient mode of linking together the supports of doors and windows was to place a plank of wood or slab of stone known as a *lintel* across them at the top. To this style of roofing and spanning, which reached its most perfect development in the temples of Greece, the name of the *trabeated* was given, derived in the first instance from the so-called *trabea*, a toga adorned with horizontal stripes.

It was only by very gradual degrees that the trabeated mode of roofing and spanning was succeeded by what is known as the *arcuated*, or that in which the arch takes the place of the horizontal beam. In early Roman temples and palaces the Greek style was long carefully copied, but in utilitarian works such as bridges, viaducts, and drains the arch was employed at a very remote period. An arch whether circular or pointed consists of two series of stones cut into the form of wedges known as *voussoirs*, a central one at the apex or highest point called the *keystone* locking the two series together. This beautiful contrivance, the inventor of which is unknown, gradually revolutionised the science of architecture. It was used at first, tentatively as it were, in combination with the horizontal beam or slab of stone, but in the end became in its rounded form the distinctive peculiarity of the Romanesque and in its pointed shape of the Gothic style.

ARCHITECTURE

CHAPTER I

EGYPTIAN, ASIATIC, AND EARLY AMERICAN ARCHITECTURE

THE most ancient existing examples of Egyptian architecture are the royal tombs of the Memphite kingdom known as the Pyramids, of which the oldest is that of King Seneferu (about 3000 B.C.) at Medum, and the largest, which rises to a height of 481 feet from a base 764 feet square, that called the Great Pyramid of King Cheops (3788–3666) at Ghizeh, near Cairo, on which 100,000 men are said to have been continuously employed for thirty years. The latter is not only a marvel of constructive skill, but is by many authorities considered to be a most accurately designed astronomical observatory.

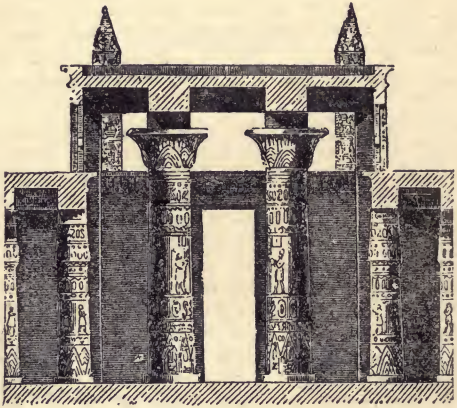
Section of King's Chamber, and of Passage in Great Pyramid

The Pyramids consist of masses of admirably squared and polished stones, in certain cases supplemented with bricks piled up in the form of a rectangle around a sepulchral chamber, the entrance to which was most carefully concealed. When the body of the monarch had been placed in it the tapering mound above it was finished off with huge facing blocks, that were skilfully worked into the angle required and finally levelled to a smooth surface.

Near the Pyramids of the kings are the tombs, known as Mastabas, of their wives and children and of the great officers of state. They are constructed of stone, are square or oblong in form, and their walls are adorned with paintings of scenes from contemporary life, the whole reminiscent of earlier timber structures. Later tombs are those hewn out of the living rock at Beni Hassan and elsewhere, dating from about 2500 B.C., with porticoes upheld by columns resembling those of Greek

temples, and flat or curved roofs, the latter suggestive of the principle of the arch having been known to those who excavated them.

It was between 1600 B.C. and 1110 B.C. that the Egyptians reached their highest point of civilisation, and it was during that period that were erected the magnificent Theban temples, of which those at Karnak and Luxor, which were connected by an avenue of colossal sphinxes, are the finest still remaining. The plan of all Egyptian temples of whatever size was the



Section of Hall at Karnak

same: a horizontal gateway flanked on either side by masses of masonry of considerably greater height than it, known as pylons, their surfaces enriched with symbolic carvings, giving access to a square space open to the sky, and partly surrounded with cloisters, leading into a noble hall of huge dimensions, its flat roof upheld by columns, some with capitals resembling lotus buds, others representing the head of the goddess Isis. Beyond this hall were a number of small dark rooms, the use of which has never been ascertained, enclosing within them the nucleus of the whole, the low narrow mysterious cell or sanctuary in which was enshrined the image of the god to whom the temple was dedicated. Outside these noble buildings were ranged obelisks, or four-sided tapering-pillars of great height, covered with hieroglyphics commemorating the

triumphs of the kings, and colossal figures, few of which remain *in situ*, which added greatly to the dignity of the appearance of the whole.

To the same period as the temples of Thebes belong those of very similar general design hewn out of the sides of the mountains of Nubia, of which the best example is the larger of the two at Ipsambul, specially noteworthy for the huge seated figure of the monarch for whom it was built, the great Rameses II, guarding the entrance to it. The tombs of the Theban rulers, like the Nubian temples, were hewn out of the living rock, and are many of them, notably those known as the Tombs of the Kings and the Tombs of the Queens in the plains watered by the Nile, of vast extent, labyrinths of passages,

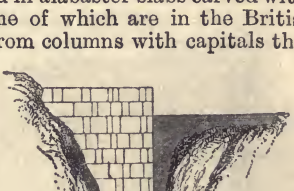
Tomb at Beni Hassan

alternating with large rooms, leading to the actual sepulchral chamber.

Of considerably later date than any of the buildings referred to above are the temples of Denderah, Edfou, and Philæ, erected after the conquest of Egypt by the Greeks, but they all resemble those of the Theban dynasty in general style, whilst that at Esneh is a good example of the results of Roman influence.

Very great is the contrast to Egyptian architecture presented by the Asiatic buildings that have been preserved to the present day. In the former stone was the usual material employed, and the mode of construction was as a general rule that known as the post and lintel, whilst in the latter brick was almost exclusively used, and the arch was a distinctive feature. The so-called Babylonian or Chaldean, Assyrian, and Persian styles resemble each other so greatly that they may justly be said to belong to one type, evolved by the inhabitants of the extensive region watered by the Euphrates

and Tigris, who like the Egyptians attained to a very advanced civilisation at a remote period. Of the temples not a single one has been preserved, but the remains have recently been excavated, in the mounds on the site of Babylon, of four that consisted of numerous chambers enclosing a large court with towered gateways, whilst at Assur another has been uncovered of a somewhat similar design. To atone for the lack of temples many Asiatic palaces have been to some extent reconstructed, the most remarkable being those unearthed near the villages of Nimrod, Khorsabad, and Koyunjik, all supposed to be relics of Nineveh. They originally consisted of lofty many-roomed structures raised on high platforms, and entered from arched gateways flanked by colossal winged bulls of stone. The brick walls were encased in alabaster slabs carved with figure subjects in low relief, some of which are in the British Museum, and galleries, rising from columns with capitals that foreshadowed



Terrace Wall at Khorsabad

Greek forms, admitted air and light freely. The Palace of Nebuchadnezzar has also recently been identified, and must when uninjured have been an immense castle-like pile with a vast number of courts and halls to which a paved way led up.

Tombs and palaces are the chief relics of Persian architecture. Many of the former, notably that near Murghab, supposed to have been the sepulchre of Cyrus, resemble Greek temples in general style, whilst others are rock-cut and recall the Mastabas of Egypt. Of the palaces those at Persepolis were the most remarkable, for in them Persian architecture reached its fullest development. Their ruins, that rise from a platform some forty feet high hewn out of the surface of the living rock, to which long flights of steps led up, consist of vast columned halls entered from detached porticoes known as propylæa. When intact the largest of these halls, named after Xerxes, must have exceeded in size the cathedrals of Canterbury or Winchester.

Other noteworthy relics of early Asiatic architecture are the

tombs of Lycia, Phrygia, and Lydia. The first named—of which the so-called tomb of the Harpies now in the British Museum is a typical example—are all either cut in the living rock or carved out of detached masses of stone, in either case recalling in their general appearance the log-huts of prehistoric times. More ornate than those of Lycia, the Phrygian

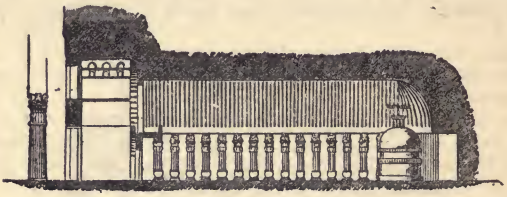
Restored Section of Hall of Xerxes

sepulchral monuments, of which the grave of Midas at Doganlu is the finest, are also rock hewn, but their shape and decoration are more suggestive of the tent than the wooden dwelling, whilst those in Lydia are comparatively primitive, being in some cases, notably in the Tumulus of Tantalus on the Gulf of Smyrna, mere masses of stone heaped up above a huge mound.

The most ancient examples of Indian architecture are the Stambhas or Lâts, the earliest dating from the time of Asoka (272–236 B.C.), that are pillars bearing inscriptions and surmounted by a symbolic animal such as an elephant or a lion, of which there is a good specimen at Allahabad, and the Stupas or Topes, mounds encased in masonry, crowned by a reliquary containing memorials of Buddha or of his chief disciples, and enclosed within a stone railing elaborately carved with scenes from the life of the founder of Buddhism, with an even more ornate gateway at each of the four corners, of which the finest is the larger of two at Sanchi in Central India. Even more interesting than the Lâts and Stupas are the Viharas or Buddhist monasteries, of which there is a specially good example at Nigope near Behar, and the Chaityas or temples, of which those at Karli, Ellora, Ajunta, and Elephanta are amongst the finest. All alike hewn out of the living rock, the former consist of a square central hall with or without columns,

Capital of Lât

surrounded by cells for the monks, whilst the latter, of more complicated design, resemble in general plan a Roman basilica. A wide nave with rows of massive pillars upholding a slightly domed roof is flanked by lateral aisles, and at the eastern end



Section of Cave at Karli

rises a semicircular sanctuary containing a seated figure of Buddha.

Out of the Buddhist religion grew that known as the Jaina, and many fine temples, of which the most remarkable are that at Sadri and the Dilwana Temple on Mount Abu, remain that were erected for the use of its professors. It was usual to group a number on some hill-top, and the plan of each was

View of Temple at Sadri

generally that of a Greek cross, a columned portico giving access to a complex collection of shrines, each approached by avenues of pillars and roofed in with a separate dome, whilst the exterior was adorned with rounded towers finished off with pointed finials suggestive of a spire, the whole both inside and out being richly decorated with carvings.

Hindu architecture, or that of those who hold the Brahmanic faith, differs very greatly from Buddhist, its chief characteristic

being a lofty pyramidal tower of several stories, as a general rule covered with ornament, that reached its fullest development in the so-called pagodas, of which there are fine specimens at Jaggernaut, Mahavellipore, and Palitana. In different parts of India various modifications of this general style occur to which distinctive names have been given, but the same spirit may be said to pervade them all, from the great Temples of Bhuvaneswar, Tanjore, Bundaban, and elsewhere, to the humbler shrines scattered throughout the length and breadth of the vast continent and of its island dependencies.

There is nothing very distinctive about the architecture of China or Japan. The Buddhist temples in both countries recall those of India, but the pagodas, most of which are of wood faced with porcelain tiles, differ slightly in having a curved roof to each story. The palaces of China are impressive on account of their vast extent and the use of copper in their construction, but the domestic buildings of Japan are all of comparatively small size.

In America as in Asia are many deeply interesting architectural relics of the civilisation of the early inhabitants, of which the most remarkable are the ruins of Cyclopean buildings on the shores of Lake Tatiaca, the remains of the ancient city of Cuzco, all in Peru, and the Teocallis or temples and Palaces of the kings in Mexico, Yucatan, and Guatemala, none of which however call for description here as they did not influence the architecture of the future in their own or any other country.

CHAPTER II

GREEK ARCHITECTURE

In their architecture as in their sculpture the Greeks gave eloquent expression to the exquisite feeling for symmetry of form which was one of their most distinctive characteristics. Architects and masons were in close touch with the people for whom they built, no social barriers, so far as the arts and crafts were concerned, divided class from class, citizens, aliens, and even slaves vying with each other in their zeal to produce the best work possible.

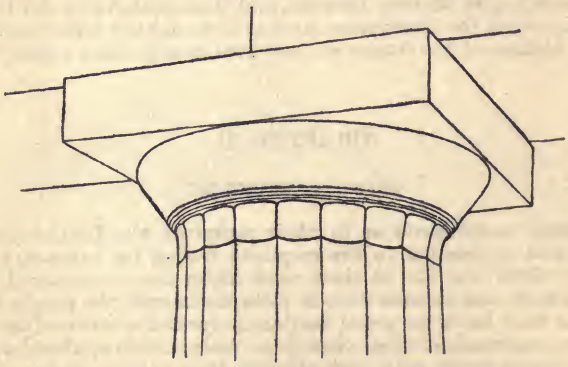
The finest buildings of ancient Greece and its dependencies entirely fulfilled the conditions of true architecture, for they were beautiful alike in design and execution, admirably adapted to the purpose for which they were erected, and in complete harmony with their surroundings. Moreover they are of

exceptional importance in the history of the evolution of the art on account of the influence they exercised on that of other countries, all their distinctive features having been either copied or modified in those of the rest of Europe.

Plan of Greek Temple

The Greeks, though they were doubtless acquainted with the arch, the dome, and the tower, refrained as a general rule from using them, probably because they considered them unsuitable to the topographical and climatic conditions that prevailed in their native land. They achieved their highest results by means of correctness of proportion and dignity of outline, giving far more attention to the exterior than to the interior of their buildings, and in this respect differing greatly from the Egyptians, who endeavoured to impress the spectator chiefly by the vast extent and massiveness of their temples and palaces.

Recent discoveries on the site of Knossos in Crete of the remains of a many-roomed palace, and elsewhere in the same island of circular stone tombs, all of which betray strong Oriental

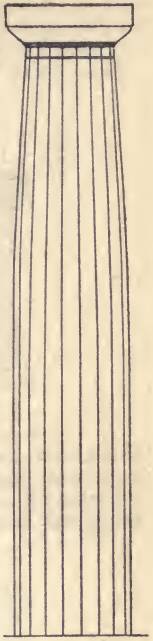


Doric Capital

influence, confirm the opinion of archæologists that it was in the islands of the Ægina Sea that the first works of architecture properly so called were erected in Europe. On the mainland of Greece, notably at Mycenæ and Tiryns, exists relics of many

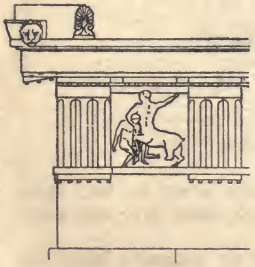
buildings, including at the former the noble Lion Gate that gave access to the Acropolis, and at the latter the residence of a chieftain, which maintain the continuity between the earliest and the latest phase of Greek architecture, and may justly be said to presage the triumphs of the Golden Age.

From first to last Hellenic architecture was characterised by unity of purpose, its grandest forms being essentially the same in general principle as its earliest efforts, the mud walls with timber pillars upholding a flat wooden roof, having been gradually transformed into stately colonnaded structures in costly materials, that to this day remain absolutely unrivalled in their exquisite beauty of proportion and the close correlation of every detail with each other and the whole.



Column from the Parthenon

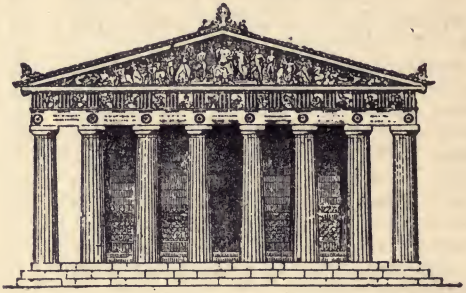
The grand temples of Greece were built either of stone or of marble. As a general rule they are set on a platform to which a long flight of steps lead up, and are enclosed within an outer wall or a continuous colonnade. Their plan is extremely simple: a parallelogram, formed in some cases entirely of columns, in others with walls at the side and columns at the ends only, encloses a second and considerably smaller pillared space known as the cella or naos, that enshrined the image of the god to whom the building was dedicated, and was entered from a pronaos or porch, and with a posticum or back space behind it, sometimes supplemented by a kind of second cella called the opisthodomus or back temple. The front columns at either end are spanned by horizontal beams that uphold a sloping gable called a pediment, the flat, three-cornered surface of which is generally adorned with sculpture in bas-relief, and along the side-columns is placed what is known as the entablature, that consists of three parts, the architrave resting on the capitals of the columns, the frieze above it, and the cornice, the



Portion of a Doric Entablature

last of which sustains the flat roof, usually covered with tiles or marble copies of tiles.

Greek architecture is generally divided into three groups or orders: the Doric, Ionic, and Corinthian, each of which,



The Parthenon

though the buildings belonging to them resemble each other in general plan, is distinguished by certain peculiarities of the columns and entablatures. The Doric was the earliest to be employed, but the Ionic, that early succeeded it, was long

Metope from the Parthenon

used simultaneously with it, sometimes even in the same building, whilst the Corinthian did not come into use until considerably later.

In the Doric order the column has no separate base, but rises direct from the top step of the platform on which the

building it belongs to stands. It is of massive form and has what is known as an entasis or slightly convex surface, it is

Portion of Frieze of Parthenon

generally fluted, that is to say, cut into parallel perpendicular channels, several rings called annulets connecting it with the capital, which consists of an echinus or rounded moulding and an abacus or unrounded slab resting on the echinus. The Doric entablature is equally simple, the architrave being perfectly plain, whilst the frieze is adorned with triglyphs or three upright projections with grooves between them, set at equal distances from each other, the spaces separating them, known as metopes, being as a rule enriched with fine sculptures of figure subjects. The frieze is connected with the cornice by narrow bands called mutules resting on the triglyphs and metopes, and the cornice itself has a plain lower band known as the corona, surmounted by more or less decorated courses of stone or marble.

Portion of Frieze of Parthenon

The Ionic and Corinthian orders are alike characterised by lightness and grace rather than massiveness and simplicity. In both, the columns, instead of rising direct from the platform, have a complex base consisting of a number of circular mouldings one above another, the fluted shafts are comparatively slim and tapering, and the channels in them are divided by spaces called fillets. In the Ionic order the flat abacus of the Doric capital is replaced by two coiled volutes projecting beyond the echinus on either side, and the horizontal portion between the volutes is surmounted by finely carved leaf mouldings. The Corinthian order is specially distinguished by the ornate decoration of the capitals, that represent calices of flowers and leaves, chiefly those of the acanthus, arranged so as to point upwards and curve outwards in much the same style as they do in nature. The architrave in both the Ionic and the Corinthian orders consists of plain slabs, but the frieze—which is not divided as in Doric buildings into triglyphs and metopes—is in nearly every case enriched with a series of beautiful figure subjects, and is therefore known as the Zoophorus or figure-bearer.

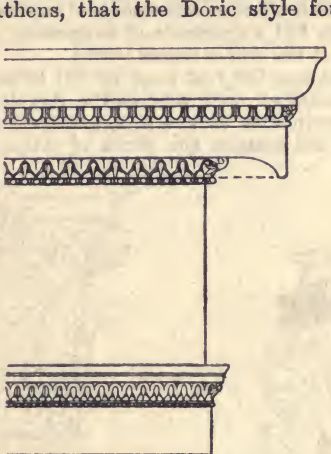
Ionic Capital

Ionic Column

Among the most ancient remains of sacred Greek architecture are those of the Heræon or Sanctuary of the Goddess Hera at Olympia; of the temple that preceded the Parthenon at Athens; and of those at Assos in Asia Minor, Selinus in Sicily, and Corcyra in Corfu, the last a very typical example of archaic Doric, with a pediment in which are primitive sculptures of a gorgon flanked by lions. Of somewhat later date are the ruined temples at Girgenti, Syracuse, and Segesta, all in Sicily, the last the best preserved of all; the group at Pæstum in Southern Italy, of which that of Neptune is the finest, the pediments having been originally filled in with beautifully executed sculptured figures. The Temple of Athene in the island of Ægina marks the transition from the extreme severity of early Doric to the more ornate buildings of the Golden Age of Greek architecture, its decorative sculptures being of exquisite design and execution. The Temple of Jupiter at Athens, begun in the Doric style by

Pisistratus about 540 B.C. and not completed until about 174 B.C., has Corinthian capitals on some of its columns, and the Temple of Theseus, of uncertain date, in the same city, that consists entirely of white marble, ranks, in spite of its severe simplicity, even with that of Neptune at Pæstum on account of its fine proportions and the admirable finish of every detail.

It was in the Parthenon, or Temple of the Virgin Goddess of Wisdom, at Athens, that the Doric style found its highest



Ionic Entablature from the Erectheum

expression, for in it were combined the massive grandeur of the archaic period with the refinements of construction, decoration, and lighting of a more scientific but not less æsthetic age. It occupies the site of an earlier building, the relics of which are referred to above, that was destroyed by Xerxes, and it rises from the summit of the lofty rock of the Acropolis that dominated the ancient city. It was built, it is supposed, by the famous architects Ictinus and Callicrates about 440 B.C., under the enlightened ruler Pericles, and its decorative sculptures, some of which are now in the British Museum, were the work of Phidias and his pupils, and, mutilated though they

are, they still rank amongst the greatest masterpieces of plastic art.

Before the Parthenon, after being long used as a Christian church, was reduced to ruins by the explosion of a shell, when in 1687 it was desecrated by being converted into a powder magazine by the Turks during their struggle with the Venetians, it must have been one of the very noblest buildings in the world, forming with other sanctuaries and secular buildings on the world-famous hill a spectacle of surpassing grandeur, the pride and glory of the whole Greek world.

The Parthenon was 228 feet long by 101 broad, and 64 feet high; the porticoes at each end had a double row of eight columns; the sculptures in the pediments were in full relief, representing in the eastern the Birth of Athene, and in the

Acanthus Ornament

Corinthian Capital

western the Struggle between that goddess and Poseidon, whilst those on the metopes, some of which are supposed to be from the hand of Alcamenes, the contemporary and rival of Phidias, rendered scenes from battles between the Gods and Giants, the Greeks and the Amazons, and the Centaurs and Lapithæ.

Of somewhat later date than the Parthenon and resembling it in general style, though it is very considerably smaller, is the Theseum or Temple of Theseus on the plain on the north-west of the Acropolis, and at Bassæ in Arcadia is a Doric building, dedicated to Apollo Epicurius and designed by Ictinus, that has the peculiarity of facing north and south instead of, as was usual, east and west.

Scarcely less beautiful than the Parthenon itself is the grand

triple portico known as the Propylæa that gives access to it on the western side. It was designed about 430 by Mnesicles, and in it the Doric and Ionic styles are admirably combined, whilst in the Erectheum, sacred to the memory of Erechtheus, a hero of Attica, the Ionic order is seen at its best, so delicate is the carving of the capitals of its columns. It has moreover the rare and distinctive feature of what is known as a caryatid porch, that is to say, one in which the entablature is upheld by caryatides or statues representing female figures.

Corinthian Column from Monument of Lysicrates

Other good examples of the Ionic style are the small Temple of Niké Apteros, or the Wingless Victory, situated not far from the Propylæa and the Parthenon of Athens, the more important Temple of Apollo at Branchidæ near Miletus, originally of most imposing dimensions, and that of Artemis at Ephesus, of which however only a few fragments remain *in situ*.

Of the sacred buildings of Greece in which the Corinthian order was employed there exist, with the exception of the Temple of Jupiter at Athens already referred to, but a few scattered remains, such as the columns from Epidaurus now in the Athens Museum, that formed part of a circlet of Corinthian pillars within a Doric colonnade. In the Temple of Athena Alea at Tegea, designed by Scopas in 394, however, the transition from the Ionic to the Corinthian style is very clearly illustrated, and in the circular Monument of Lysicrates, erected in 334 B.C. to commemorate the triumph of that hero's troop in the choric dances in honour of Dionysos, and the Tower of the Winds, both at Athens, the Corinthian style is seen at its best.

In addition to the temples described above, some remains of tombs, notably that of the huge Mausoleum at Halicarnassus in memory of King Mausolus, who died in 353 B.C., and several theatres, including that of Dionysos at Athens, with a well-preserved one of larger size at Epidaurus, bear witness to the general prevalence of Doric features in funereal monuments and secular buildings, but of the palaces and humbler dwelling-houses in the three Greek styles, of which there must have been many fine examples, no trace remains. There is however

no doubt that the Corinthian style was very constantly employed after the power of the great republics had been broken,

Corinthian Entablature from Monument of Lysicrates

and the Oriental taste for lavish decoration replaced the love for austere simplicity of the virile people of Greece and its dependencies.

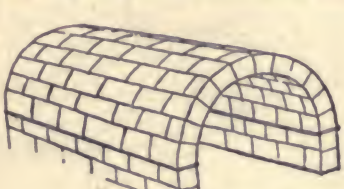
CHAPTER III

ROMAN ARCHITECTURE

After the Golden Age of Greek architecture properly so called was over, a kind of aftermath prevailed for some little time in the peninsula and the outlying colonies of Greece, to be succeeded by a transition time to which the name of the Hellenistic has been given, during which is supposed to have been inaugurated the use of the arch and the vault, which were in course of time to revolutionise the art of building.

It has long been customary to give to the Etruscans, an Asiatic people who in very early times occupied a considerable

portion of Italy, the credit of the first introduction of the arch in Western Europe. It is however now more generally believed that the Roman style of building was an offshoot of the Hellenistic, in which the dome was certainly employed, though no existing examples of its use can be quoted. The city of Alexandria, founded about 332 B.C. by Alexander the Great, is known to have had four principal colonnaded streets leading from a four-arched central building, and many are of opinion that much of the town was built over arched cisterns. The dome may possibly have been in the first instance introduced into western Europe as a cover for the hot baths in which the wealthy delighted, and its form was probably the same as that of the one preserved at Pompeii. The famous arched drain at Rome, known as the Cloaca Maxima, so constantly referred to as the greatest masterpiece of the Etruscans was not, it has now been proved, built until after their subjugation

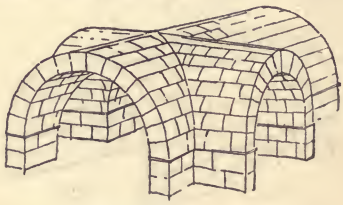


Roman Barrel Vault

and extinction as a nation. For all that they were without doubt most skilful architects and engineers; the walls of their cities were of cyclopean masonry and were entered from arched gateways, a good example of which is to be seen at Volterra, constructed of wedge-shaped stones fixed without cement. Their rock-cut tombs, such as those at Corneto, Vulci, and Chiusi, are divided into many chambers, the walls adorned with paintings, the roof upheld by columns, and the façades resembling those of Egyptian temples, whilst the tumuli in which they sometimes buried their dead are surmounted by pyramids of earth resting on stone foundations.

From whatever source Roman architects got their inspiration, they very soon absorbed all external influences and stamped the buildings they erected with a character of their own. From the first sun-dried bricks, sometimes combined with stone, were the chief materials used, even the grander structures of the best period such as the huge palaces and halls were of plastered brickwork, stone having been as a

general rule reserved for such works as temples, theatres, and triumphal arches. Concrete was also largely employed, and timber in many cases was turned to account for roofing. The most distinctive peculiarity of the architecture of the Romans is the vaulted roof, which they employed in an infinite variety of ways, introducing it at every possible opportunity. The simplest form, known as the waggon or barrel vault, is a semicircular arch spanning two walls, whilst a more elaborate contrivance consists of two intersecting vaults of the same height crossing each other at right angles, which was used in Rome as early as 75 B.C. These two forms were sometimes supplemented by what are distinguished as conches or half-domes over external semicircular recesses, of which the apse is a characteristic example. With the aid of these three varieties of vaulting, that were occasionally combined with consummate skill, the

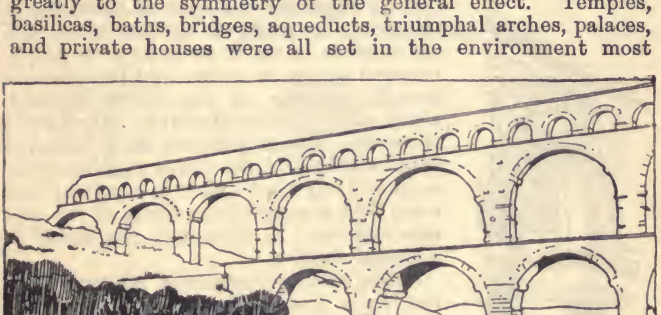


Intersecting Vaulting

Romans were able to roof in large or small circular spaces, and in some few cases, as in the Baths of Caracalla at Rome, they even to a certain extent anticipated the clever contrivance known as the pendentive, a triangular piece of vaulting springing from the corners of a right-angled enclosure, that was later brought to such perfection in Byzantine architecture.

With their wonderful system of vaulting the Romans combined the columnation and entablature of the Greeks, introducing innovations however that were in many cases anything but improvements. Thus they sometimes supplemented the foliage of the Corinthian capital with the volutes of the Ionic; whilst what is known as the Tuscan style is really merely a modification of the Doric, and is wanting in the simple dignity that characterised the latter, the metopes being adorned with sculptures very inferior to the beautiful figure subjects of the Parthenon and other Greek temples. Roman architects were in fact rather skilful engineers and adapters of the æsthetic

conceptions of others than original designers of new forms of beauty, but they were unrivalled in their power of harmoniously co-ordinating in a single building an infinite variety of structural features. They were moreover exceptionally successful in the laying out of cities, as proved by the wonderful groups of buildings in the fora or public squares in which courts of justice and markets were held, of the capital and other cities, and by the fine continuous vistas of their streets, in which irregularities were masked by clever contrivances, adding greatly to the symmetry of the general effect. Temples, basilicas, baths, bridges, aqueducts, triumphal arches, palaces, and private houses were all set in the environment most



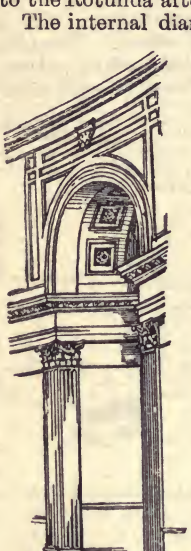
Pont du Gard, Nîmes

suitable to them, and even tombs were ranged according to a definite plan, not, as in most modern cemeteries, dotted here and there in an arbitrary manner.

The earliest Roman works of architecture were of a purely utilitarian character, and in addition to the Cloaca Maxima already mentioned the most noteworthy still in existence are the bridges over the Tiber, the aqueducts of the Campagna outside Rome, and the so-called Pont du Gard at Nîmes, France. The most ancient temples greatly resemble those of Greece, and amongst them may be named as specially typical those of Fortuna Virilis and of Antoninus and Faustina, both now in use as churches, and that of Venus and Rome, all in the capital, that of Diana at Nîmes known as the Maison Carrée, and that of the Sun at Baalbec. Of later date are the beautiful circular

temples, of which the grandest example is the Pantheon of Rome, built under Hadrian about A.D. 117, in which Roman architecture reached its noblest development. The colonnaded porch with entablature and pediment, that detracts so much from the external effect of this magnificent building, did not originally belong to it, but formed the entrance of a temple built by Agrippa more than a century before, and was added to the Rotunda after the completion of the latter.

The internal diameter of the Pantheon is 142 feet 6 inches, and its height at the apex of the dome is the same; its walls are 20 feet thick, and its concrete dome is adorned with deeply recessed panels or coffers and has a single circular opening at the crown through which alone light is admitted. The floor is of marble; bronze pilasters flank doorways of the same metal, the oldest existing specimens of their kind, and it is supposed that when first completed the whole of the outside was cased in white and the inside in coloured marbles.



Section of Pantheon

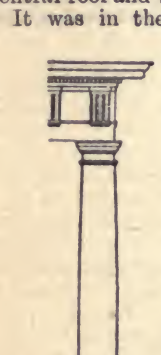
Other circular temples of Roman origin, but on a much smaller scale than the Pantheon, are the Temple of Vesta and that in the Forum Boarium, Rome, the latter much injured and spoiled by a modern roof quite out of character with it; the one at Tivoli near the capital, known as that of the Sybils, still beautiful in spite of the loss of much of its entablature and many of its columns; the Temple of Jupiter at Spalato with a domed roof upheld by columns; and that at Baalbec, which has the distinctive feature of a curved instead of a perfectly flat entablature.

A very special interest attaches to the Roman basilica on account of its having so long been supposed to have been the type on which the earliest Christian churches were built. Basilicas were used as courts of justice and exchanges, more rarely as market-places, and the most ancient are said to have been merely square spaces, enclosed within rows of columns open to the air, that were however soon succeeded by walled buildings roofed with timber or with vaults of concrete supported on massive piers of stone. In them a raised semicircular space at the eastern end was divided off by columns known as cancelli for the use of the magistrate and his lectors, and between

it and the main body of the hall, which was divided by columns into a nave and aisles, rose the altar on which sacrifice was offered up before any business of importance was entered upon.

A good example of an early Roman basilica is that called the Ulpian in the Forum of Trajan, Rome, dating from A.D. 98, which is said to have had a flat roof and double aisles, the latter surmounted by galleries, whilst that of Maxentius and Constantine, the ruins of which are known as the Temple of Peace, also in the capital, of considerably later date, A.D. 312, had a groined central roof and barrel-vaulted side aisles.

It was in their Thermæ or Baths rather than in their



Roman Doric Column and Entablature

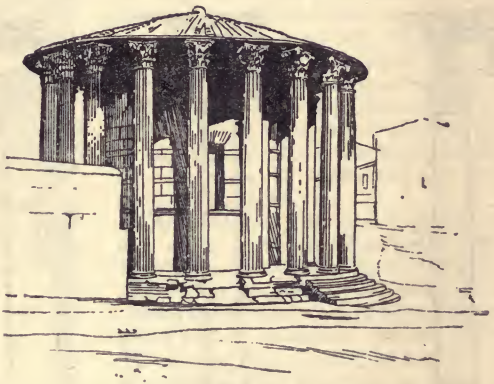
Roman Ionic Column and Entablature

Roman Corinthian Column and Entablature

Temples and Basilicas that the Roman architects achieved their greatest triumphs. These were vast complex structures fitted up with every conceivable luxury for the use of bathers, with a large hall artificially heated and known as the tepidarium, open colonnaded courts, and many subsidiary buildings including gymnasia, debating rooms, &c. They combined simple grandeur of structure with rich internal decoration. The most ancient Thermæ in Rome, of which extensive remains still exist, were those of Caracalla, erected in A.D. 217, already referred to in connection with the earliest use of the contrivance which foreshadowed the pendentive. Rising from a lofty platform, the noble tepidarium was roofed in by three fine intersecting vaults,

and its walls were cased in marble. With their supplementary buildings the baths covered a space some 110 yards square, and beneath them were many vaulted rooms for the attendants on the bathers. Amongst their ruins were found the masterpieces of sculpture known as the Farnese Hercules and the Farnese Bull, but when they were first placed there, there is no evidence to prove.

Larger and more imposing in appearance even than the Baths of Caracalla were those of Diocletian, that were capable of accommodating more than 3000 bathers and were built about A.D. 303. The grand hall or tepidarium and the barrel-vaulted



Temple of Vesta, Rome

entrance portico were most successfully converted in the sixteenth century into the church of S. Maria degli Angeli by Michael Angelo, and one of two circular structures that flanked the encircling wall was later consecrated under the name of S. Bernardo, and is still used as a place of worship.

Next in importance to the Thermæ rank the Amphitheatres of the Roman Empire, in which gladiatorial contests and other trials of skill took place, and without which no town however small was considered complete. Though their detail was almost exclusively borrowed from the Greeks—tiers of arches resting on columns and surmounted by an entablature rising one above the other—their architects managed to impress on them a distinctive character of their own. Finest of all still existing examples is the Flavian Amphitheatre, generally known as the

Coliseum at Rome, which occupies the site of the famous Golden House of Nero, and was completed about A.D. 70. It is of elliptical plan, measures some 612 by 515 feet, and was from 160 to 180 feet high. It was capable of containing some 80,000 spectators, and was for a long period the chief meeting-place of the Roman citizens. The exterior is four stories high and consists of a series of three rows of arches, the lowest with Doric, the second with Ionic, and the third with Corinthian capitals, the last surmounted by a row of Corinthian pilasters, forming a fourth story, which is supposed to have been originally of wood and to have been rebuilt in stone considerably later. The groups of seats, which, with the central arena they commanded, were protected from the weather by a moveable awning called the velarium, corresponded with the exterior stories, and to each tier a staircase led up, wide vaulted corridors connecting the various entrances with each other, running round the entire building, the whole producing a most harmonious and pleasing effect.

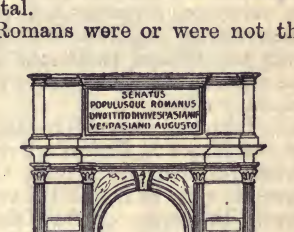
At Verona, Capria, Pola, and Pezzuoli in Italy, at Syracuse in Sicily, and at Arles and Nimes in France are remains of important Roman amphitheatres, and of the rarer theatres used for dramatic entertainments must be named the two well-preserved examples at Pompeii, the ruins of the Odeion of Herodes Atticus at Athens, and most ancient of all, the remains of the so-called Theatre of Marcellus at Rome now incorporated with the Orsinii Palace, all which appear to have resembled the Coliseum to a great extent in their general style and decoration.

Of the vast and imposing palaces built or added to by successive Roman emperors, that included audience chambers, basilicas, stadia for athletic games, galleries, state dining-halls, baths, and many suites of apartments for various purposes, there exist unfortunately but a few remains. Nero's Golden House, several of the ruins of which were excavated in the 16th century, and inspired Raphael with some of the decorative details of the loggia of the Vatican, is said to have covered more than a mile of ground, and at one time the whole of the Palatine Hill was occupied by stately edifices, with the Palace of Augustus in the centre and those of Tiberius, Caligula, Nero, Domitian, and Septimius Severus, who greatly added to and modified the work of his predecessors, grouped about them, but all that can now be fully identified are some of the ground plans with a few of the minor details of structure. To atone for this however, much of the Palace of Diocletian at Spalato in Dalmatia, to which that emperor withdrew after his abdication in A.D. 305, which originally formed a small town in itself,

is still to a great extent intact, including a temple now used as a cathedral, a gallery 520 feet long by 24 wide, and a few of the covered arcades that originally connected its various parts.

What is left of the so-called Hadrian's Villa at Tivoli near Rome proves that it too was of vast extent, with a great variety of buildings, different suites of rooms having been occupied according to the seasons, and at Pompeii and Herculaneum, thanks to the remarkable preservation of many of the houses in them, notably that named after Pansa, the domestic architecture of the private citizens of the great Roman Empire, of which picturesque arcaded courts were a noteworthy feature, can be well studied, as well as that of the temples, triumphal arches, public baths, &c., all of which greatly resembled those of the Capital.

Whether the Romans were or were not the first people of



Arch of Titus at Rome

Western Europe to use the arch, they certainly took a very great delight in it, setting up ornately decorated examples of it at the entrances to their towns, their fora, and their bridges, as well as in commemoration of great victories in war and of the completion of civic enterprises. Most remarkable of those still standing in Rome are the Arch of Titus of one span only, erected in memory of the destruction of Jerusalem by the Emperor after whom it is named; the triple-span arch of Septimius Severus, and the smaller one of Constantine. Though they were rather triumphs of engineering skill than works of architecture properly so called, the fine stone built aqueducts such as those in the Campagna of Rome and at Nîmes must be mentioned here on account of the æsthetic effect of the long rows of lofty arches, and a few words must also be said of the Pillars of Victory, of which that of Trajan at Rome is the

most notable still extant, adorned as it is with a spiral of finely sculptured bas-reliefs.

In the early days of the Roman power it was customary to cremate the dead, the ashes being preserved in urns that were ranged in cells known as Columbaria, generally hewn in the living rock. As time went on, however, the Egyptian mode of sepulchre was adopted. Bodies were embalmed and laid in stone or marble coffins which were placed in the basements of tombs of two or more stories, surmounted by round towers with pointed or circular roofs. Of these complex resting-places of the dead the finest now in existence is the Mole or Mausoleum of Hadrian, known as the Castle of S. Angelo, at Rome, which is some 300 feet high and was originally encased in marble. No burial was allowed within the walls of a Roman city, but the approaches were generally lined with tombs as at Rome, at Pompeii, and elsewhere, most of them, though on a smaller scale, of a similar plan to that of Hadrian.

CHAPTER IV

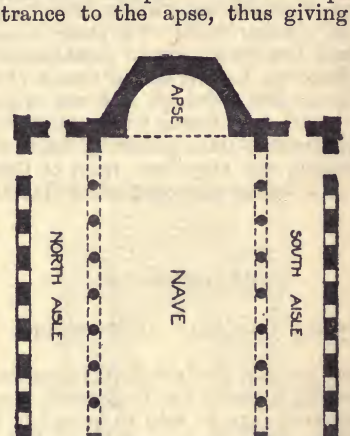
EARLY CHRISTIAN ARCHITECTURE

It was in the low, gloomy, dimly lighted subterranean galleries known as catacombs, hewn in the living rock near Rome, that Christian architecture may be said to have had its first crude beginnings. The passages in the walls of which the graves of the dead were hollowed out, widened at intervals into spacious vaulted halls, where the persecuted followers of the crucified Redeemer met in secret for worship or to take part in the funeral services for those they had lost.

It was long taken for granted that it was not until the first issue in A.D. 313 of the Edict of Milan by Constantine, Emperor of the West, and Licinius, Emperor of the East, that the professors of the new faith ventured to erect above ground buildings for the exercise of the rites of their religion, but recent discoveries prove that Christian churches were built as early as the 3rd century in many parts of the Roman empire. To quote but two cases in point, relics of a circular one with a small apse at the eastern end have been found at Antepellius in Asia Minor, and of one of the basilican type at Silchester in England. Moreover, heathen temples were occasionally converted into churches, whilst basilicas were sometimes used for Christian services just as they were.

Some few early Christian churches were possibly modelled on

classic tombs such as those referred to in the chapter on Roman architecture, but the more usual form was the basilican, the altar having been placed on the raised platform within the semicircular apse at the eastern end, the bishops and clergy occupying the seats assigned in halls of justice to the prætor and his assessors, whilst the congregation met in the nave and aisles. Ere long, however, to this general plan was added the distinctive feature of transepts or transverse passages running across the entrance to the apse, thus giving to the whole



Plan of a Basilica

building the form of a cross. Later structural changes were the erection of an arch above the altar, the heightening of the nave, the connecting of the columns between the nave and aisles by arches instead of horizontal architraves, the introduction of windows, to which the collective name of the clerestory or the clear-story was given, in the semicircular heads of the arches and more rarely into the upper part of the low external walls of the aisles, the apse, which was gradually lengthened eastwards, being left comparatively dark, the only light proceeding from the main body of the church. Simultaneously with or in some cases earlier than these alterations,

a portico known as the narthex was added at the western end, extending across the whole width of the nave and aisles, for the use of those, such as catechumens or penitents, who were not privileged to enter the church itself. The narthex in its turn was set within an atrium or outer colonnaded court, in the centre of which was a fountain, used by worshippers for ablutions before entering the consecrated building.

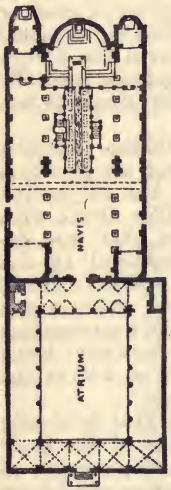
A minor characteristic of early Christian churches was the richness of the internal decoration, mosaics that is to say, patterns or pictures made of many coloured pieces of glass or stone, combined in certain examples with marble carvings and gilding, adorned the vaulting, the wall, and even the floor, a kind of mosaic known as the *opus alexandrinum* being generally used for the last, the whole producing a very gorgeous but harmonious effect.

One of the most interesting existing early Christian churches, that remains very much what it was when first completed, is that of the Nativity at Bethlehem, built in A.D. 327 by the Empress Helena when on her quest for the True Cross, with the Convent to which it originally belonged, that was destroyed by the Turks in 1236 and later restored by the Crusaders. The Church of the Nativity rises above a natural cave now converted into a crypt or vaulted subterranean chamber. It is of cruciform plan, and though its unpretending exterior is of brick, the interior has four rows of massive stone pillars dividing the nave from the aisles, which as well as the choir at the eastern end have semicircular apses.

Contemporary with this humble building, that is closely associated with all the most sacred memories of the early Church, were the vast basilican places of worship erected at Rome by Constantine and his immediate successors, which have unfortunately been either destroyed or so much modified as to retain little of their distinctive character. The Cathedral of S. Peter occupies the site of one of them, which had five aisles, a nave 80 feet wide, a comparatively small apse, and a noble atrium ; the Church of S. Giovanni in Laterano retains but a few details of its predecessor of the same name, but that of S. Paolo fuori le Mura or St. Paul without the walls, built by Theodosius in 386, is supposed to be a true copy, so far as structure is concerned, of the grand basilica destroyed by fire in 1823. It has a nave 280 feet long by 78 wide, and the whole building is 400 feet in length by 200 wide. A noble arch spans the intersection of the transepts, and lofty columns with richly carved capitals divide the nave from the aisles and the latter, of which there are five, from each other, but the roof is only a flat wooden one, the external walls are want-

ing in dignity and solidity, whilst the height, 100 feet only, is quite out of proportion with the otherwise noble dimensions.

Another very fine early basilican church in Rome is that of S. Maria Maggiore, occupying the site of a 5th century building, some of the marble columns of which with Ionic capitals have been incorporated in the later structure. The Churches of S. Agnese and S. Lorenzo are also of basilican plan, and have both the somewhat rare feature of galleries over the aisles. The former is but little altered since its erection, whilst the latter has gone through a long series of vicissitudes. It was founded in the 4th century and greatly added to in the 5th by Sixtus III, who joined a second church on to it, so that it had an apse at each end. Both these apses, with the walls between the earlier and the later buildings, were pulled down in the 13th century by order of Pope Honorius III, who had the earlier church converted into a choir and the later into a nave, with very satisfactory results.



Church of S. Clemente

Even more interesting than S. Lorenzo is S. Clemente, Rome, that consists of two buildings of widely separated dates one above another, the lower, which now serves as a crypt, supposed to have been built at the beginning of the 6th century, the upper not until 1108. Both are of the same general plan as the other basilican churches described, with certain differences in minor details, including in the more modern portion a low marble screen dividing the choir and altar from the nave.

To many of these early churches fine cloisters, that is to say, arcaded colonnades encircling the outer walls, were added, those that once enclosed the ancient basilica of S. Paola fuori le Mura being among the finest still preserved, that may be said to have anticipated the beautiful ambulatories of later monastic and collegiate buildings.

In other cities of the Roman empire are many noteworthy early basilican churches, including S. Apollinare Nuovo within and S. Apollinare in Classe without the walls of Ravenna, the cathedral of Torcello, that is connected by a narthex with the later S. Fosca, in which the transition from the Roman to the Byzantine style is shadowed forth, and the cathedrals of Parenzo and Grado in Istria, the former retaining almost intact its

beautiful colonnaded atrium, the latter chiefly remarkable for its fine mosaic pavement.

In addition to the early churches of basilican plan are a few of circular form, such as that at Rome enshrining the tomb of S. Constanza, the daughter of Constantine, dating from about A.D. 354, which has a domed roof and vaulted aisles, the 5th century church of S. Stefano Rotondo in the same town, the latter, though greatly modified in detail, still preserving its two concentric ranges of columns, S. Vitale at Ravenna, and S. George at Salonika, that has a circular nave but an oblong chancel and apse, whilst the 6th-century tomb of Theodoric is typical of the use of a similar plan in sepulchral monuments.

In the first centuries of the Christian era it was customary for the ceremony of baptism to be performed in buildings known as baptisteries, apart from, but close to, cathedrals and important parish churches. These buildings were as a general rule of circular or octagonal plan with a tank in the centre of the interior, of size sufficient for the total immersion of candidates. The earliest and also one of the finest existing examples is the Baptistery of Constantine that rises close to S. Giovanni in Laterano, Rome, and is two stories high, with a central domed roof of timber and flat-ceilinged aisles, the massive porphyry columns dividing them from the space set apart for the ceremony of baptism, being surmounted by slender pilasters. Another fine early Baptistery is that at Nocera, which resembles that of Constantine in general plan and style.

The Christians of Egyptian descent, to whom the name of Copts has been given, evolved a style of building that combined with oriental traditions certain details of western architecture. They were very early familiar with the dome, and employed it in churches of a basilican ground-plan even before it was adopted in the Roman Empire. Moreover, certain of the barrel vaults and arches in Coptic places of worship were pointed, so that the most distinctive characteristic of Gothic architecture may be said to have been to some extent anticipated. Except for the effective feature of the dome the exteriors of these buildings were plain and unpretending, but the interiors were in many cases lavishly decorated with marble mosaics. Other peculiarities were the division of the eastern extremity into three semicircular or square recesses, each containing an altar, the use of an elaborately carved screen shutting off the choir or chancel from the nave and aisles, and the introduction of galleries above the latter for the use of the women of the congregation.

Specially noteworthy examples of Coptic architecture are the two churches in Upper Egypt known as the White and

Red Convents, the former supposed by some authorities to be even older than the church of the Nativity of Bethlehem, the 6th century church of Dair-as-Sûriâni in the Desert, and the 8th century S. Sergius or Abu Sargah at Cairo, whilst in the oasis of El Bagawat have recently been excavated a large number of sepulchral chapels, dating probably from the 5th century, many of which have domed cupolas greatly resembling in structure those of considerably later Byzantine buildings.

In Syria, as well as in Egypt, are many very interesting early Christian churches, including the vast complex 5th century building at Kalat Seman dedicated to S. Simeon Stylites, which has four basilicas, each with an apse, grouped about a central octagon; the 6th century church at Sergiopolis; and the smaller contemporaneous ones at Qalb Lorzeh and Roueiha; all of which, though they resemble in general plan the basilicas of Rome, have certain details that appear to shadow forth the characteristics of the Romanesque style, notably in the first the cruciform bays dividing the nave from the aisles, in the second, the use of the lobed arch, and in it and the Roueiha building the grouping of the clerestory windows.

Asia Minor is also rich in examples of early Christian architecture, of which one of the most remarkable is the 5th century S. Demetrius at Salonika, of basilican plan with transepts at the eastern end, nave arcades resembling those of S. Clemente, Rome, and galleries above the aisles, such as those of the Coptic places of worship quoted above. With it must be named the 6th century church in the same city, now used as a mosque, under the name of Eski Djuma, and the considerably later churches at Bin Bir Kilissi that have only recently been explored and are of basilican plan with barrel-vaulted roofing.

CHAPTER V

BYZANTINE AND SARACENIC ARCHITECTURE

THE term Byzantine has been given to the style of architecture which was the outcome of the fusion of the best building traditions of the East and of the West, the former contributing the distinctive structural feature of the dome, with the minor details of richness of colouring and lavishness of decoration, the latter dignified symmetry of proportion and scientific solidity of construction.

It was in Byzantium, when in 330 the first Christian Emperor

chose it as his headquarters, and its name was changed in his honour to Constantinople, that the union which was to be so prolific of results took place. Unfortunately however none of the churches erected under the auspices of Constantine in the new capital have been preserved, the sole relic of his reign, so far as architecture is concerned, being the foundations of the apse of a church, now replaced by a considerably later building, in which he had the Holy Sepulchre at Jerusalem enclosed. The oldest existing church in Constantinople is a basilica of the Roman type dating from 463, with nothing distinctive of the new style about it, but there is historical evidence that the noble S. Sophia, in which that style reached its fullest develop-

S. Sophia, Constantinople

ment, was preceded in Constantinople by other grand buildings of a similar type, including one dedicated to the Holy Apostles which was cruciform in plan and had five domes.

The most distinctive peculiarity of Byzantine architecture is the roofing over of square spaces with the aid of the pendentive, a clever expedient already explained, that was carried to great perfection by the builders of Constantinople and those who elsewhere followed their example. Previously employed in comparatively small structures, it now became the fundamental principle for the roofing over of spaces of a great variety of extent, groups of domes and semi-domes, in many cases supplemented by tapering towers rising with imposing effect from massive outer walls. The long aisles and nave of the Roman and early Christian basilicas were replaced by a more or less square

plan, lofty piers spanned by arches upholding the central cupola, whilst the galleries above the aisles rested on slender columns such as were also employed to rail off the sanctuary and narthex from the main body of the building. The whole of the interior, which was lighted from windows in the dome, was most profusely decorated, the walls having dados or slabs of different coloured marbles supplemented by mosaics, with which every portion of the domes, semi-domes, and pendentives were also covered, whilst the columns, in many cases of variegated marble, had beautifully carved capitals of an infinite variety of design.

It is customary to divide the history of the development of Byzantine architecture into two distinct periods, the first extending from the 4th to the close of the 6th century, the second from the 8th to the 13th century, there having been a pause between them during which no buildings of any importance were erected owing to the wars which convulsed alike the East and the West. As already stated, no actual buildings belonging to the earlier portion of the first period remain, but there exist in S. Vitale at Ravenna and still more in S. Sophia at Constantinople unique examples of the golden age of Byzantine architecture, the inspiring influence of which was felt throughout the whole of Europe and the greater part of Asia. The former church, begun about 526, is of octagonal plan, each division, except that containing the choir, with an apse of its own, and though the interior has been greatly spoiled by restoration, the general effect of the vaulted roofing, marble casing of the walls, and mosaics of the eastern end is extremely fine. San Vitale is, however, altogether excelled by the world-famous S. Sophia, now the chief mosque of Constantinople, which occupies the site of a basilica built under Constantine, that was burnt down early in the reign of Justinian. The latter emperor at once ordered the erection of its successor, appointing as architects Anthemios of Thralles and Isodoros of Miletus.

Begun in 532 and completed in 537, S. Sophia is of very simple yet most dignified external appearance, so symmetrical is the grouping of its many domes and semi-domes, whilst the interior, though it has none of the rich colouring usual in oriental buildings, is unsurpassed in the harmony of its structural details, all of which lead up, as it were, to the huge central dome, the lower portion of which is pierced with a series of small windows throwing a flood of light upon the vast circular space below. The general plan is square, but a fine narthex consisting of two spacious halls one above the other projects slightly beyond the actual church at the western end. The

nave, which is 106 feet wide by 225 long, has a semicircular apse with small recesses opening out of it at either end, and is separated from the aisles by rows of closely set columns with ornate capitals, spanned by arches upholding two-storied arcaded galleries, roofed in by semi-domes, except at the northern and southern ends, which have walls with numerous small windows. One large western window illuminates the nave, and there is also a double circle of lights round the apse, the galleries, and the narthex.

Other interesting early Byzantine buildings are the Baptistery at Kalat-Seman and the church of S. George at Ezra, both in Syria, each of which is of square plan with an octagonal central space, the latter having the comparatively unusual feature of a dome upheld by what is known as a drum, that is to say a low vertical wall instead of pendentives. The church of S. Sergius at Constantinople, contemporaneous with S. Sophia, is specially noteworthy on account of the introduction in it of a classic entablature, combined with distinctive Byzantine features, with which may be named the much-restored S. Lorenzo at Milan and the church of the Virgin at Misitra, the ancient Sparta.

To the second period of Byzantine Architecture belong not only several fine buildings in Constantinople, but others in Greece, Asia Minor, the North of Italy, and elsewhere, all of which, though they have the leading structural features of the style, are distinguished by certain minor local characteristics. The most noteworthy in the capital are the now secularised church of S. Irene, founded by Constantine and rebuilt considerably later, and the church of the Chora monastery, specially remarkable for its beautiful mosaics, whilst in Greece the Churches of S. Nicodemus at Athens and that of Daphni not far from it, with the two monastic churches at Stiris and the churches of S. Sophia and S. Elias, at Salonika, are all thoroughly Byzantine, bearing a close resemblance to each other. They are all, however, excelled by the great Cathedral of S. Marco at Venice, which rivals even S. Sophia in the exquisite beauty of the interior and excels it in the ornate richness of the exterior.

Founded early in the 9th century, S. Marco was partially destroyed in 978 and rebuilt soon afterwards in the original style, that of a basilica without transepts, but in the second half of the 11th century it was completely transformed by additions converting it into a cruciform building, roofed over by five domes of the same size, and with five arcaded porches at the western end that form one of the grandest façades in the world. Numerous columns of many covered marbles uphold

graceful arches, the spandrels, or triangular spaces between them filled in with gleaming mosaics, and above them rise other arches that contrast well with tapering towers supported on slender pilasters to which the domes beyond form an admirable background. Within the church to which this magnificent narthex gives entrance, an infinite variety of harmonious details combine to produce an entrancing effect: one charming vista succeeding another, the whole flooded with light from a vast number of windows, there being no less than eighty in the domes alone. Mosaics of different dates and greatly varying æsthetic merit completely clothe the surfaces of the vaulting, the capitals of the columns—many of which, by the way, are purely decorative, upholding no arches—are elaborately carved, and the flooring is of marble, slabs of considerable size being set in patterns of tesseræ.

In the various countries which fell under the influence of the followers of Mahommed a style of architecture was evolved that had marked affinities with the Byzantine, the first mosques having been designed, it is supposed, by Christian architects of Oriental origin, who retained the square or circular ground-plan of early churches, though they modified the interior to suit the requirements of the new religion, introducing, for instance, a central tank for ablutions. Mosques intended for worship only, generally had flat roofs, the use of the dome being at first distinctive of a burial place, but as it very soon became usual to inter in mosques, the dome came to be quoted as a distinctive feature of them. By degrees simple unadorned mosques were replaced by vast buildings with many arcaded courts entered from ornate lateral doorways, whilst certain characteristic features were introduced, of which the chief were the stalactite vaulting, the name of which explains itself, the horse-shoe arch, and the minaret, the last named a turret of several stories gradually decreasing in circumference, each with a balcony of its own from which the mueddin calls the faithful to prayer. Pointed arches were also constantly employed as well as the form known as cusped, that is to say one with a triangular projection springing from the inner curve. A minor but most significant characteristic of Saracenic architecture is the elaborate surface decoration in which geometrical designs, letters, &c., are interwoven with consummate skill, but in which no figures of animals are ever introduced, the representation of life being strictly forbidden by the Koran.

Although Arabia was the birthplace of the founder of Islam, there are few Saracenic buildings of importance in it. The so-called great Mosque at Mecca, which has been a goal of pilgrimage from all points of the Mahommédan world for so

many centuries, has been since its foundation completely rebuilt, not assuming its present form until the middle of the 16th century. It has little that can be called architectural style about it, consisting as it does of an arcaded enclosure in the centre of which is the Kaaba, a heathen shrine that existed long before the time of Mohammed, the whole surrounded by a wall with several gateways and minarets.

In Jerusalem various characteristic buildings bear witness to the prevalence of the Mahommedan faith in the Holy City of the Christians, including the 7th century Mosque el Aksah, originally a Christian church transformed into what it

Section of Mosque el Aksah at Jerusalem

now is by Calif Omar, and the 8th century shrine erroneously named after him, also known as the Dome of the Rock, both of which rise from the site of the Jewish Temple. The latter is of octagonal plan, and, though its details are of a somewhat hybrid character, many of the columns having been filched from other buildings, whilst the decorations of the great dome and of the exterior were added in the 16th century, is of very singular charm on account of the symmetry of its proportions and the richness of its colouring, the walls being cased in Persian tiles and the windows filled with stained glass.

It appears to have been in Egypt that Saracenic architecture, strictly so-called, first attained to the structural dignity and appropriateness of ornamentation that were to distinguish

it in Persia, Spain, and India. In the 7th century Mosque of Amru and that of Ibn Touloun, dating from the 9th century, both at Cairo, the earlier phases of the style can be studied, whilst the later development is illustrated in the same city by the 13th century Mosque of Kalaoon, the 14th century Mosque of Sultan Hassan, that has the rare feature in a Mahommedan building of a cruciform plan, the contemporaneous Mosque of Sultin Barkook, and the small 15th century Mosque of Kait-Bey, the last specially noteworthy on account of its beautiful internal decoration and its graceful minaret.

In Persia the finest mosques are the 13th century one at Tabrez known as the Blue, and that at Ispahan dating from the 16th century, which has a grand dome and noble gateways with pointed arches, whilst at Serbistan, Firanzabad, Ukheithar, Kasir-i-Shirin, and elsewhere in the same country are remains of palaces and other secular buildings, ranging in date from the 4th to the 9th century, that give proof of great structural and decorative skill on the part of the architects who worked for the fire-worshippers, who, though they required no temples in which to worship their gods, lavished vast sums on their own homes.

Beautiful as are the relics of Saracenic architecture in Egypt, Syria, and Persia, they are excelled by many remarkable buildings in Spain, where, after the conquest of the country by the Moors in the 8th century, the style reached its fullest development. The most remarkable examples of it are the Mosque at Cordova, begun in 786 by Abd-el-Rahman and added to from time to time by his successors, with the result that it affords an excellent illustration of the modification of details that took place as time went on ; the 12th century Giralda or Tower at Seville, noteworthy for its fine proportions and effective surface decoration, the 13th century Alcazar or castle in the same town, and above all the Palace of the Alhambra, that dominates Granada from a lofty height above the city, which was begun in 1248 by the Moorish King, Ibn-l-Ahmar and added to by his successors. Of the original buildings that, when first completed, must have been one of the grandest and most finely situated groups in the world, all that now remain are the towers of the north wall, in one of which is the vast hall of the Ambassadors, and various colonnaded rooms and porticoes ranged round two spacious courts, one called that of the Fishpond, the other that of the Lions. The delicate grace of the columns and arches, with the richness of their decoration and of every inch of surface, has never been surpassed either in beauty of design or harmony of colour, whilst the

effects of perspective from the doorways and other points of view are equally unrivalled. No single detail is superfluous or without its special meaning in relation to the whole, and even what to the uninitiated appear mere geometrical designs on the walls, lintels, &c., are quotations from the Koran and classic Arabic poetry.

When through the breaking up of the power of the Moors in Spain, the architecture introduced by them seemed fated to share their decline, a kind of revival of it took place in Constantinople through the conquest of that city by the Turks in 1453. Unfortunately however the style made no real progress

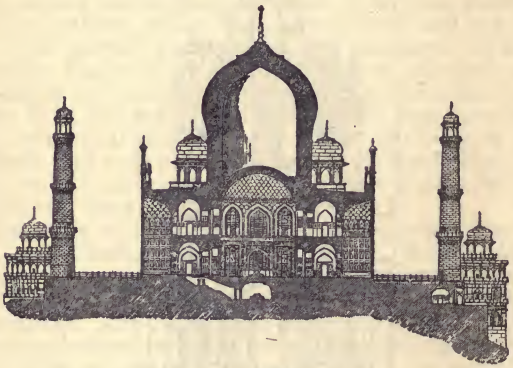
Section of Mosque at Cordoba

there, the mosques and other buildings erected by the new owners being rather Byzantine than Saracenic, even that known as the Suleimanyeh, built between 1550–1556, and the Ahmediyeh, dating from 1608–1614, greatly resembling St. Sophia.

In India the mosques and palaces erected by the Mahommedan conquerors and their successors are even more beautiful and impressive than the Buddhist and Hindu buildings described in the section on Asiatic architecture. Their distinctive characteristics, as in Egypt, Persia, and Spain, are the skilful combination of the dome, the arch and the minaret, and the lavish surface decoration of the interior, with certain other peculiarities that were the outcome of local tradition. More attention was given, for instance, to external appearance, huge recessed

gateways and colonnaded cloisters surmounted by rows of purely decorative domes on pilasters, being of frequent occurrence. At the same time, stalactite vaulting was rarely employed, whilst horizontal courses of corbels or arches in which each stone projects slightly beyond that on which it rests, were used as supports for the domes instead of pendentives.

Among the most noteworthy still-existing examples of Indo-Saracenic architecture are the early 15th century Jumna Musjid or Great Mosque at Ahmedabad, that has certain details recalling Hindu post and lintel structures; the late 15th century Adinah mosque at Gaur, which has 385 domes; the 16th century Jumna Musjid at Bijapur, that has the



Section of Taj Mahal, Agra

singular feature of a central space covered in by a dome upheld by intersecting arches, set in a number of squares with flat roofs; the Mosque built by Akbar in the second half of the 16th century at Futtehpore Sikhri, the gateways of which are specially characteristic; and the remarkable buildings at Delhi and Agra, erected in the 17th century under the enlightened Shah Jehan, including in the former city the Jumna Musjid and the fortified palace, and in the latter the Moti Musjid or Pearl Mosque, and the Taj Mahal, both exceptionally beautiful, in which the Saracenic style may justly be said to have reached its culmination, nothing that can be compared with them having been since produced either in India or elsewhere. The Taj Mahal, built by the Emperor as a tomb for himself and his favourite wife, is indeed of dream-like and ethereal charm, with its well-proportioned domes and

minarets, cased, as is the rest of the exterior, in white marble, and its interior enriched with mosaics of precious stones.

CHAPTER VI

ROMANESQUE ARCHITECTURE

THE term Romanesque is given to the period between the beginning of the 9th and the middle of the 12th century, but there was no real break in the continuity of the evolution of Christian architecture in Europe from the time when that

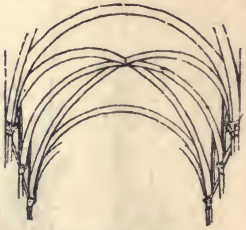
Simple Intersecting Vaulting

art first freed itself from Pagan influence till it reached its noblest development in the Gothic style.

From first to last the keynote of structure was the use of the arch for vaulting and for the spanning of piers and columns, and its form is, as a general rule, indicative of the phase of development to which it belongs. Although, however, it may be said that the semicircular arch is characteristic of Romanesque buildings, the lintel is occasionally used simultaneously with it in interiors, and the chief entrances are in many cases spanned by horizontal beams or courses of stone that are, however, as a general rule surmounted by arches. Moreover in late Romanesque work the pointed arch is now and then introduced shadowing forth the approaching change.

It was not in the invention of new forms of vaulting but in the adaptation and improvement of those already in existence that Romanesque architects chiefly displayed their skill. The earliest Romanesque vaults were simple intersecting arches similar to those which had long been in use, but as time went on these were superseded by what is known as ribbed vaulting; that is to say by roofs divided into bays by a framework of diagonal ribs supporting fillings in of thin stone called severes, which in their turn gradually developed into the complex and ornate system of Gothic vaulting. To counteract the thrust of arched and ribbed vaulting the device of buttresses was hit upon. These buttresses consisted at first of a series of supports introduced beneath the roof of the aisles and extending from the back of the nave to the aisle

Ribbed Vaulting



Ribbed Vaulting

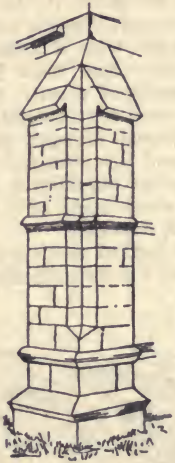
wall, which were later supplemented by the external buttresses known as flying, that were to be so distinctive a feature of Gothic architecture.

Other characteristics of Romanesque architecture are the slenderness of the columns as compared with those of earlier buildings, the disuse of classic capitals, and the substitution for them of what is known as the basket form, that is to say, semicircular mouldings enclosing floral designs, later replaced by a great variety of forms, such as flowers, leaves, human and animals' heads. The grouping of columns in clusters also came into use, the general tendency being towards the production of an effect of grace and lightness rather than of strength and solidity. Arched cornices were introduced to relieve the monotony of the walls above the pillars of the nave, whilst an even more marked change took place in the windows, which, though small and few in early Renaissance buildings, gradually increased in number, in size, and in the beauty of their tracery. At the eastern end of churches several windows were in some cases grouped together, divided only by slender pilasters, and

above the western entrance large circular windows known as the rose or wheel—according to certain peculiarities of their tracery—were introduced, whilst the walls were pierced by rows of complex windows, each with a number of different lights.

In Romanesque churches the beautiful colonnaded narthex of the early Christian basilica is replaced in Northern and occasionally in Southern Italy by a projecting, and elsewhere by a simple, porch ; but to make up for the loss of what was a very effective feature, the whole of the western façade, including the recessed doorway giving access to the nave, is

Clustered Column



Buttress

Buttress

generally most richly decorated with sculpture and carving, figures in niches, grotesque animal forms of symbolic meaning, with floral and geometrical designs of great variety and beauty adorning every portion.

On either side of the west front of many Romanesque buildings, more rarely also from the point of junction of the transepts and nave, rise lofty square or octagonal towers, the earlier with flat, the later with more or less steeply pitched roofs, that gradually developed into the tapering spires so characteristic of the Gothic style. Occasionally the eastern apse is flanked by a turret or small tower, and in some cases, chiefly in Italy, a detached and lofty tower known as a Campanile

or Bell Tower—though it only rarely contains bells, being sometimes merely a secular monument—rises close to the church or at a little distance from it, but connected with it by a cloister.

In S. Ambrogio, Milan, begun in the 9th and completed in the 12th century, the gradual change from the early Christian to the Romanesque style as developed in Italy can be studied. It has a nave of basilican type, a narthex surmounted by a gallery, a pediment-like gable at the western end, an octagonal cupola roofing over the eastern apse, with a circle of windows flooding the choir with light, a triforium or arcaded storey above the aisles, and most characteristic of all, an open external arcaded gallery, admitting air and light beneath the roof of the apse, such as was to become so effective a decorative feature of later buildings, and in some cases to be extended along the aisles and above the chief entrance.

Rose Window

S. Michele, Pavia, is a typical and very beautiful example of the Romanesque style of the twelfth century, specially note-

Example of Arched Cornice

worthy features being its cruciform plan, its two-storied aisles, and its external gallery with clustered pilasters; and the contemporary S. Zeno, Verona, though it has no triforium and is not vaulted, has noble clustered piers from which sprang arches—only one of which remains—spanning the nave, alternating with single columns.

Other fine Romanesque buildings in Italy are the Cathedral of Verona, which has a fine two-storied porch; the Cathedral of Novara, specially noteworthy for its beautiful atrium; S. Miniato, Florence, that is of basilican plan, and, though it is without transepts, has the distinctive Romanesque feature of transverse arches upheld by clustered piers spanning the nave and aisles; S. Antonio, Piacenza, with transepts at the western instead of the eastern end, fine intersecting vaults roofing in the whole building, and a tower rising from the junction of the nave and transepts; and the Cathedral of Pisa, the last a complex building with vaulted aisles, a dome above the intersection of the transepts and nave, a flat roof over the latter, and a lofty triforium gallery running round the entire church, the general effect being most pleasing and harmonious. Close to the cathedral are the 12th century circular Baptistery, that has considerably later additions, and the famous Leaning Tower, the three buildings forming one of the finest architectural groups in the world.

Certain very marked characteristics distinguish the buildings of Sicily from those of contemporary date on the mainland of Italy, the Romanesque style, as is very clearly seen in the Cathedral of Monreale, having been there considerably modified alike by Saracenic and Norman influences. The pointed arch was adopted long before it came into use elsewhere in Europe, having been, it is suggested, a modification of the horse-shoe form so characteristic of Moorish mosques.

In France, Romanesque ecclesiastical architecture followed, in the main, the same lines as in Italy, with, in many cases, one notable addition, that of the chevet, a circlet of chapels round the eastern apse, which gradually grew out of what was known as an ambulatory, that is to say, a space in which perambulation was possible, obtained by the extension of the aisles behind the choir. In early examples of the ambulatory the circle was continuous, as in the church of S. Saturnin, Auvergne, but as time went on, small semi-circular chapels were introduced, with windows between them, that gradually developed into the chevet, the chapels increasing in number and in size, and in some cases extending westwards along the aisles.

The churches and cathedrals of Southern France differ in several respects from those of the North, the aisleless basilica plan with barrel, intersecting, or domed vaulting being of frequent occurrence in the former, whilst in the latter the beautiful arcaded aisles and steeply pitched roof presage the approach of the Gothic style with its pointed arches, groined roofs, flying buttresses, and tapering pinnacles.

The five-domed S. Front in Perigueux, though it has rudi-

mentary aisles only, is a good example of an early French Romanesque building, in which Oriental influence is very perceptible, it being in some of its features a copy of S. Marco, Venice, whilst in the later Cathedral of Angoulême of cruciform plan with apsidal chapels, that of Le Puy with a triple entrance porch, the church of S. Hilaire, Poitiers, with its irregular domes, the uncompleted S. Ours, Loche, with its pyramidal octagonal spires, S. Saturnin, Toulouse, with its central many-storied tapering tower, the 12th century churches of Vezelay and Avallon; the cathedral and church of La Trinité at Angers, both combining pointed arches with domed vaulting, the gradual development of the southern branch of French Romanesque architecture can be very clearly studied.

In many of the noble churches and cathedrals of Northern France and elsewhere the Romanesque may justly be said to have melted into the Gothic style, some of them combining as they do the most beautiful features of both. To the cost of their erection ecclesiastics and laymen alike contributed with eager zeal, and amongst the architects and craftsmen employed on them, class and professional rivalry were merged in one common enthusiasm to promote the glory of God, all desire for individual distinction being merged in an unselfish ambition to aid in producing a building worthy of His worship.

In Normandy was inaugurated the phase of Romanesque architecture which was to develop on such noble lines in England, the chief distinctions of which are the massiveness of the walls and pillars, the great length of the nave, the richness of the decoration alike of the shafts and capitals of the columns and of the round-headed arches they uphold. Very notable examples are the Abbaye aux Hommes, the Abbaye aux Dames, and the Church of S. Nicholas, all at Caen, the first with circular arched vaulting and western towers ending in spires, the second with a Gothic roof of intersecting pointed arches, the third with three apses, each with a steeply pitched roof, a porch with three arcades at the western end, and a low gabled tower rising from the point of intersection of the nave and transepts, the three buildings illustrating well the transition from the simple basilica to the complex Gothic structure. With them may be named the Abbey of Jumièges, of which unfortunately but a few relics remain, which had beautiful clustered piers alternating with single columns upholding semicircular lateral arches, a flat roofed nave, and vaulted aisles.

Other fine Romanesque churches of Northern France, all of which differ somewhat in general appearance from those of Normandy, are the Cathedrals of Noyon and Soissons, the church of S. Pierre at Lisieux, all of which combine pointed with

semicircular arches, and above all the Cathedral of Le Mans, which has a very characteristic Romanesque nave flanked by round-headed arches and roofed over with an equally characteristic groined Gothic vault, whilst the choir, added in the early 13th century, is encircled by a beautiful chevet, the exterior of which with its many buttresses and pinnacles presents a most impressive appearance.

One of the finest Romanesque buildings in Europe is the Cathedral of Tournai, Belgium, which has a flat-roofed nave of exceptional length, picturesque lateral storied galleries, a central tower with a lofty spire, and two supplementary towers, also with spires, flanking the northern and southern apses. Elsewhere in Belgium are several flat-roofed churches of basilican plan, some with ambulatories in the French style but no apsidal chapels. In Spain, on the other hand, the chevet is rarely absent from ecclesiastical buildings, whilst a distinctive local feature is a low central dome or tower known as the cimborio, which is in many cases scarcely more than a swelling of the roof at the point of intersection of nave and transept.

Germany is especially rich in Romanesque churches, which, like those of Belgium, are of basilican plan with flat roofs. In the Cathedral of Trier can be studied the gradual growth of the Teutonic form of the Romanesque style, for it was originally an early Christian Church of the Roman type, which was converted into one of a more distinctive style in the 11th century by additions, including a western apse, whilst the noble vaulting of the nave dates from the 12th and the choir from the 13th century. As time went on the multiplication of apses became characteristic of German churches, it being usual to add one at the western end, and more rarely also on the northern and southern sides, the beautiful tapering columns dividing them from the aisles, with the small chapels beyond them, producing very fine effects of perspective. Other peculiarities of German Romanesque buildings are their great height and the noble proportions of the interiors, with the finely balanced grouping of the cupolas, towers, and turrets of the exterior; to which must be added the absence of the great Western doorway that lends such distinction to French, Italian, and Belgian churches.

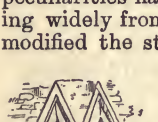
Very fine examples of the style in Germany are the churches of S. Maria in Capitolo Cologne, S. Quirin in Neuss, and the cathedrals of Nuremberg and Bamberg, but it was in those of Speier, Mainz, and Worms that it achieved its greatest triumphs. The first, it is true, has no western apse, but this is atoned for by a fine narthex, and in the other two the western extension is as conspicuous as the eastern. Dignified simplicity and

sense of space are the chief characteristics of all three buildings, massive columns upholding the arcading flanking the naves, whilst the walls of the aisles are unbroken by triforia, the piers at Speier and Worms being carried right up to the clerestory windows, whilst at Mainz two arches are placed one above the other, the vaulting of the nave springing from the upper tier.

CHAPTER VII

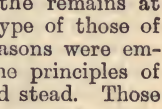
ANGLO-SAXON AND ANGLO-NORMAN ARCHITECTURE

In Great Britain, even more than on the Continent, the architecture of the past reflects national character, its distinctive peculiarities having been the outcome of local conditions differing widely from those that obtained elsewhere, which largely modified the styles introduced from without. On the arrival of the Romans in the first century of the Christian era, there were, with the exception of the monoliths on Salisbury plain known as Stonehenge and other prehistoric relics, the origin of which has never yet been discovered, no buildings of greater pretension than mud huts or circular stone or wooden houses with a hole in the tapering roof through which air was admitted and smoke dispersed. The houses, palaces, and churches erected by the invaders were, as proved by the remains at Silchester, Wroxeter, and elsewhere, of the type of those of Imperial Rome, and on them many British masons were employed, who thus acquired a knowledge of the principles of construction that stood their successors in good stead. Those successors, however, showed no desire to perpetuate the style introduced by the conquerors, and when the latter withdrew in the 5th century the buildings they left behind them were allowed to fall into rapid decay.



Example of Saxon Arcading

Very quickly too did most of the converts to Christianity relapse into heathenism, and although the lamp of faith was long kept burning in Ireland and in Scotland, no trace exists of the churches in which the little remnant of the followers of the Redeemer met for worship. Of those built later under the auspices of Saints Augustine, Paulinus, and other early bishops,



Example of Saxon Arcading

not one escaped destruction, but there is strong evidence to prove that they were of the basilican apsidal plan, that never took very deep root in England, but was in many cases ousted by the sanctuary with a square-shaped eastern extension.

It is usual to give the term Anglo-Saxon to all relics of buildings in Great Britain, that can be proved to date from between the early 7th century and 1066, but Pre-Conquest would be more strictly accurate, Anglo-Saxon architects having contributed but little to the evolution of style, for they were wanting in initiative, rarely trying experiments with new features as was the constant custom of their Norman successors. To this, however, there was one brilliant exception in Bishop Wilfrid of York, who greatly improved the primitive church, built by King Edwin in the capital of his see, that was later destroyed by fire, and erected noble minsters at Hexham and Ripon, of which the fine crypts with massive pillars still remain beneath the considerably later buildings. In the south of England, too, there was considerable architectural activity in the 7th and 8th centuries, whilst in the 9th the return of King Egbert from his long exile at the Court of Charlemagne appears to have led to the introduction in Wessex of the Oriental branch of the Romanesque style to which the cathedral of Aix-la-Chapelle belongs.

Tower of Sompting Church, Sussex

The chief characteristics of the so-called Anglo-Saxon style are the great height in comparison with the length and breadth of a building, a rectangular plan, massive square towers, unadorned angular or semicircular arches, stunted clumsy-looking columns with roughly carved or plain capitals, long narrow round-headed deeply recessed windows, massive walls without internal decoration, with on the exterior a somewhat ornate surface ornamentation, combined with a series of peculiar clamps known as quoins at the angles of the walls, greatly strengthening the structure. There were no aisles or transepts in early Anglo-Saxon buildings, but the chancel was divided from the nave by an arch sometimes with and sometimes without carving.

It is supposed that most of the early Anglo-Saxon churches were built of wood, and at Greenstead in Essex an example remains of the mode in which such buildings were constructed, though the probability is that none of the original material remains. Of the stone buildings that succeeded those in the more perishable material a few only are still in existence, in-

cluding the Abbey Church of Deerhurst near Tewkesbury, the oldest consecrated building still in use in England, the Tower of Earl's Barton Church in Northamptonshire, parts of Barfreston Church, Kent, that has a fine Norman doorway: Sompting Church, with the unusual feature of a gabled tower with a spire, and that of Worth, both in Sussex, the latter with rudimentary transepts and a semicircular apse, with which may be mentioned S. Lawrence at Bradford-on-Avon, Wilts, of somewhat uncertain but probably later date than any of these, for it has a square Eastern end and decorative arcading on the upper portion of the walls, prophetic of coming changes.

Certain portions of St. Martin's Church, Canterbury, notably a doorway in the chancel and parts of the foundations, are supposed to have belonged to a Saxon church of earlier date than the crypts of Hexham and Ripon already referred to, and which was preceded by an even more ancient building, one of the very first places of Christian worship erected in England.

The so-called Pyx House in Westminster Abbey, a low narrow solemn-looking vaulted room with a row of massive pillars in the centre, and a single archway in the south transept, are all that are left of the noble sanctuary built under the direction of the last of the Saxon kings, but these relics, with a few conventual buildings, suffice to connect with Anglo-Saxon times a church that is perhaps more intimately associated than any other with the history of England from the close of the 11th to the middle of the 16th century, it having been added to under every successive occupant of the throne.

The Anglo-Norman style, that succeeded the Saxon, prevailed in Great Britain from the conquest to the last decade of the 12th century, becoming at that time either merged in or superseded by the earliest phase of the Gothic.

Always most enthusiastic builders, the Normans found in the land of their adoption fuller scope for their energies than in their own, and before they became absorbed in the race they had conquered, they left their impress throughout the length and breadth of their new domain, monasteries, cathedrals, and parish churches, castles, and dwelling houses rising up in every direction, all stamped with a most distinctive character, the result of the welding into one of Anglo-Saxon and Norman traditions, and the modification of a foreign style by local conditions of material and environment. In many cases somewhat crude and heavy, Norman work has yet always an imposing dignity, and is, as a general rule, admirably suited to the site it occupies and the purpose for which it is intended.

The chief characteristics of Anglo-Norman ecclesiastical

buildings are a cruciform plan; the great length in comparison with the breadth of the nave, which joins the choir without the

Plan of Norman Church

Base and Capital of Norman Pillar

Norman Capital

Norman Capital. White Tower, London

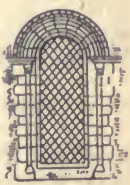
intervention of a screen, such screens as are *in situ* being of much later date than the churches in which they are found;

Norman Arcading

Norman Window

Norman Arcading

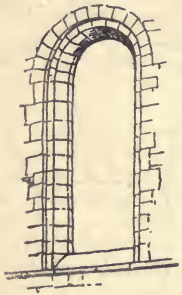
Norman Window



Norman Window

columns of greater girth and height than the Saxon type, some circular, others six or eight sided, the circular type occasionally clustered in groups of six or more, with roughly carved capitals

of which the so-called cushion form is of most frequent occurrence, upholding arches of wide span, massive walls, those of the nave with rows of purely ornamental arcading, beautifully proportioned triforia and clerestories; long, narrow, round-headed windows, two or three being often grouped together; deeply recessed and finely decorated doorways; strong external



Norman Window

Norman Doorway

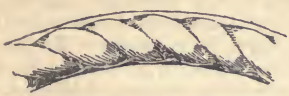
buttresses; twin western towers and a loftier central one rising from the intersection of nave and transepts. With certain notable exceptions referred to below, Norman churches have flat timber roofs, but those of the crypt beneath them are generally of groined stone with plain or only slightly ornamented ribs.

Norman Buttress

Another very distinctive characteristic of the Norman style is the richness of the surface decoration of the interiors of cathedrals and churches, the bases, shafts, and capitals of the columns, the arches, headings of windows, mural arcades, &c. being all enriched with mouldings of an infinite variety of form, including the so-called cable resembling a rope, the billet not unlike short bits of rounded wood, the chevron or zig-zag, the fret or fillet, the lozenge, the trellis, the cone, the scollop, and wave with the so-called torus, a convex swelling, and the cavetto, a hollow moulding, the last two used almost exclusively on the bases of columns.

Among noteworthy existing examples of the Anglo-Norman style are the nave, transepts and western doorway of Hereford Cathedral; the choir, transepts, and nave of Peterborough

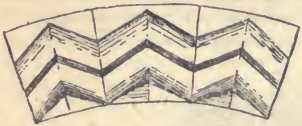
Cathedral; the naves of Gloucester, Exeter, Chichester, and



Cable Moulding

Billet Moulding

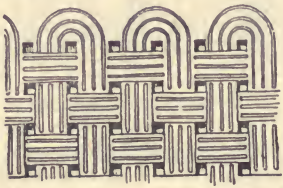
Ely Cathedrals; certain portions of Canterbury Cathedral, including the choir chapels, part of the cloisters, the baptistery



Chevron or Zig-zag Moulding

Diamond or Lozenge Moulding

tower, S. Anselm's Tower, and a fine staircase leading up from the Close; the Chapter House of Worcester Cathedral; the



Trellis Moulding

greater part of Norwich Cathedral, which, though it has the French chevet at the eastern end, combines with it the dis-

Cone Moulding

Scollop Moulding

tinctive English characteristics of a nave of great length and

long transepts, the former with fourteen noble bays; the naves of S. Alban's Abbey, Southwell Minster, and the Priory Church of Christchurch, Hants; portions of the nave and transepts and the central tower of Christchurch Cathedral, Oxford; the beautiful portal of Tewkesbury Abbey, the finest in England, and the doorway of Hales Church, Norfolk, on which may be seen many of the characteristic mouldings enumerated above.

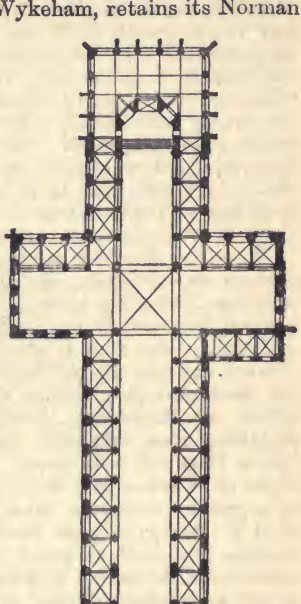
Somewhat later in date and even more distinctively Anglo-Norman than the examples quoted above, is the noble Cathedral of Durham, in which the style reached its fullest culmination. It remains, with the exception of the so-called Chapel of the Nine Altars that replaces the original apse, very much what it was when first completed, and reflects the national unity that was becoming ever more and more complete whilst it was

Norman Church at Kilpeck

being erected. A very noteworthy feature of this most effective building, in which every detail is subordinated to the general effect, is the vaulted roof of the nave, one of the very few dating from Norman times, significant of the approaching revolt against the flat roofs that had so long been looked upon as essential. In spite of certain crudities of structure it harmonises well alike with the vaulting of the aisles and transepts of earlier, and of the choir of somewhat later date. The great clustered piers alternating with cylindrical columns, the fine arches spanning them, the beautiful triforia and clerestories, and above all the long vista of nave and choir, combine to place Durham Cathedral in the very highest rank amongst contemporary buildings either in England or on the Continent, whilst in the Galilee Chapel, to which a porch, replacing an earlier entrance, gives access, the details of the transitional Norman style can be very clearly studied, the graceful intersecting arches, upheld by slender coupled columns, recently

supplemented by additional supports, enriched with characteristic mouldings, shadowing forth the approaching change to the early English phase of Gothic.

Winchester Cathedral, originally a very typical Norman building designed by William of Wykeham, retains its Norman framework, covered over, as it were, with a drapery of detail in the latest development of English Gothic, and with it may be named as characteristic Norman buildings with Gothic additions, Peterborough Cathedral, all Norman except the west front and eastern extremity of the choir; Malmesbury Abbey, with a flat-roofed nave and vaulted aisles, the latter with pointed arches; the Cathedral of Exeter; the Minster of Sherbourne; and portions of Westminster Abbey.



Plan of Peterborough Cathedral

Many parish churches, too, including those of Kilpeck in Herefordshire, a very typical Norman building; Tickencote in Lincolnshire, with intersecting pointed arches; S. Peter's in the East, Oxford, with a groined vaulted roof; Barfreston Church, Kent, with a very beautiful recessed doorway; Goring and Iffley in Oxfordshire; and above all, S. Bartholomew's in London, date from Norman times, and, though they have all been more or less modified by restoration, retain the general characteristics of the period to which they belong.

Anglo-Norman secular architecture is characterised by much the same qualities as ecclesiastical, the castles and residences of the sovereigns and the nobles having been of dignified and impressive appearance, well proportioned, and thoroughly in harmony with their surroundings. During the reigns of the Conqueror and his successors many noble strongholds were erected on points of vantage. The most important feature,

and in every case the first to be built, having been the lofty central keep or donjon, the home of its owner in peace, and the last refuge of a besieged garrison in time of war. In it was a fine hall, in which the host received his guests, with a raised platform known as the daïs for the use of those of high rank, and the approach to it was protected by a complex series of defences, including deep ditches or fosses, walls with towers and turrets at intervals, forming two distinct enclosures known as the outer and inner baileys, often covering a vast extent of ground, the whole encircled by a deep moat that could be filled with water when necessary. The great main entrance was flanked by towers, and in connection with the heavy doors of solid oak was a portcullis, that is to say, a grating of timber and iron bristling with spikes, that could be drawn up from within, cutting off all access to the inner precincts.

Some few Norman castles, all considerably modified to suit modern requirements, are still in use as residences or public buildings, including those of Windsor, Warwick (both specially typical), Norwich, Dover, Richmond in Yorkshire, and the Tower of London ; the keep of the last named (known as the White Tower) and the chapel dedicated to S. John being amongst the best examples of the Anglo-Norman style in existence; whilst at Rochester, Colchester, Croft, Headingham, and Kenilworth are extensive remains of other strongholds, that before they fell into decay, must have equalled in grandeur those of Windsor and Warwick. A very remarkable example of a private residence dating from Norman times is Haddon Hall in Derbyshire, the seat of the Duke of Rutland, which retains the original great hall with a daïs and minstrels' gallery, and a number of fine suites of rooms to which various wings were added during the 13th, 14th, and 15th centuries, affording an excellent opportunity for the study of the development of English domestic architecture.

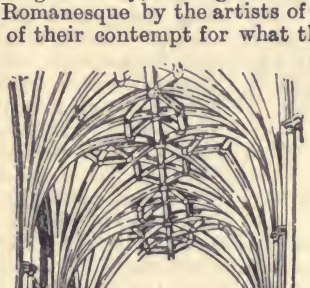
CHAPTER VIII

GOTHIC ARCHITECTURE IN EUROPE

THE first decades of the 12th century were marked throughout Europe, as far as architecture was concerned, by the final breaking loose from the Roman traditions that had so long been accepted as binding, and the revolt against which had been inaugurated more than a hundred years before. The struggle between the old and new methods of building very

clearly reflected that of the people for greater freedom of thought and action in the countries in which it took place. The keynote of both was an aspiration after nobler things, and, in architecture, a yearning for religious expression, typified by the pointing upwards of the spires and pinnacles of churches and cathedrals, coincided with the craving of builders for increased lightness and grace of structure. The lofty vaults and complicated systems of buttresses of the Gothic style bore striking witness to the ambitious daring of their designers, a daring more than justified by its results.

The term Gothic, that now calls up a vision of ethereal beauty, was, strange to say, first given to the style that grew out of the Romanesque by the artists of the Renaissance as an expression of their contempt for what they looked upon

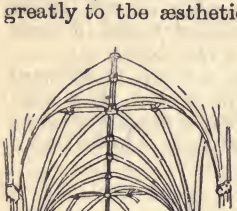


Gothic Vaulting

as outworn methods of building, similar to those of the Gothic barbarians in warfare. It very soon, however, lost all association with this most inappropriate comparison, becoming synonymous with all that is most beautiful in the architecture of the period to which it is applied.

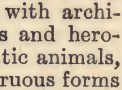
The most important characteristics of Gothic buildings are the introduction, wherever possible, of vertical or very sharply pointed details, such as highly pitched roofs and gables, spires and pinnacles, pointed arches and pointed vaulting, flying buttresses, that grew ever slenderer and more decorative, leading downwards from the roof, and counteracting the tremendous thrust of the suspended vault of stone, all of true structural value. To these must be added the minor peculiarities of slenderer columns than those of Romanesque buildings, several being often clustered together, mouldings cut into the stone of

the capitals of the columns, arcading &c., instead of projecting beyond the surface, the grouping of several windows under the arch, and the increase in the beauty of their tracery. The so-called lancet or long narrow window with stilted head, pointed like an arch, is specially distinctive of Early Gothic, and was later supplemented by the more elaborate rose window, the stained glass in them, and in the more complex groups, adding greatly to the æsthetic effect of the whole building, the many coloured light from them relieving the monotony of the stone work.



Gothic Vaulting

The general appearance of the interior of a Gothic cathedral, with its long perspective of nave, aisles, and choir, its finely proportioned triforia and clerestories, and, above all, its graceful arches leading up to their points of union in the soaring roof, may justly be called a poem in stone, whilst its exterior is equally remarkable for the close correlation of all its parts, producing an impression of consistent unity of design. An added charm is given alike to the interior and exterior by the combined richness and quaintness of the decorative sculpture, in which is clearly illustrated the delight in symbolism of the mediæval craftsmen, who, working in close accord with architect and builder, supplemented effigies of heroes and heroines of the faith, royal patrons, &c., with emblematic animals, fruit, flowers, and foliage, welding the most incongruous forms into an elaborate and beautiful scheme of ornamentation.

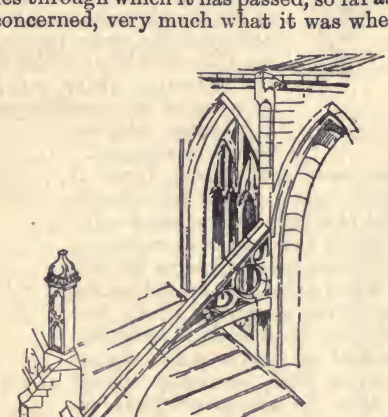


Gargoyle

It was in Northern France that the Gothic style was first developed, and there, as elsewhere, it passed through three phases. The first, characterised by comparative severity of style and simplicity of decoration, prevailing in the 12th and 13th centuries; the second, to which the name of Rayonnant is sometimes given, on account of the ray-like window tracery, in the 14th; and the third, known as the Flamboyant, because of the flame-like tracery and general brightness of the ornamentation, in the 15th century.

A hint of the coming change was, as has already been shown, given in many a Romanesque building, notably, to quote but two cases in point, in the Cathedral of Evreux, and the Church of S. Etienne, Beauvais, but it was in the Cathedral of S. Denis, near Paris, founded in 1140, that the full significance

of that change was revealed. It retains, it is true, round-headed arches above some of its windows and a few projecting decorative mouldings, but in other respects it is essentially Gothic, its double aisles foreshadowing those of the later Notre Dame of Paris, which may justly be said to be an epitome of the development of the pointed style in France. Specially dear to the French nation on account of its intimate association with many thrilling episodes of its history, it remains, in spite of all the vicissitudes through which it has passed, so far as its general structure is concerned, very much what it was when first com-



Flying Buttress

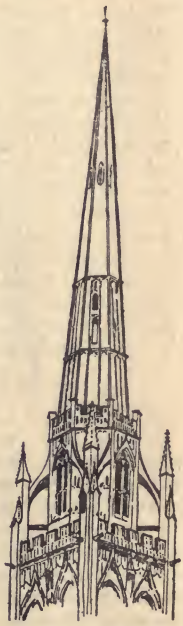
pleted in the late 13th century. The noble western façade, with its profuse and ornate ornamentation, and the fine square towers flanking it, each pierced with effective openings and adorned with grotesque gargoyles, contrast with the slender central spire—which, by the way, is modern—tiers of graceful flying buttresses, and the numerous groups of pinnacles, whilst the long line of the great roof ridge brings into relief the comparative intricacy of the design of the rest of the building, especially of the extremities of the transepts with their fairy-like arcading, beautiful sculptures, and grand rose windows.

The most distinctive details of the interior of Notre Dame are the massive piers and symmetrical arches of varying width

of the nave, the simple but most effective vaulting of it, the double aisles and the choir; the shortness of the transepts, atoned for by the unusual length of the semicircular apse, with its circlet of chapels; the combination in the clerestory of pointed-headed and rose windows, and, above all, the exquisitely proportioned and spacious triforium, which surmounts the whole of the double aisles and forms a circular gallery with arcaded openings, harmonising alike with those of the nave below and the clerestory above, and a stone vault of pointed intersecting arches springing from slender clustered columns.

Gothic Arcade

Contemporaneous with Notre Dame is Laon Cathedral, the original and characteristic chevet of which was replaced in the early 13th century by a square termination, in imitation it is supposed of some English church, but which otherwise resembles the Cathedral of Paris, especially in its fine western façade and open vaulted triforium. In the Cathedral of Chartres, founded in the 12th century, but practically rebuilt in the 13th after its almost complete destruction by fire, the further progress of the style may be studied, its arches being more stilted and its nave and choir wider than those of its predecessors, whilst its closed-in triforium is significant of the ever increasing height of the roofs, necessitating the strengthening of the walls, a change that was, however, quickly succeeded and, to a great extent, neutralised by the piercing and filling in with glass of the wall behind the arcading. Other characteristics of Chartres Cathedral are the noble sculptures of the west front, that are not only among the finest but the least injured in France, those of the south and north porches that are scarcely inferior, the dignified towers surmounted by beautiful and graceful spires of different but harmonious designs, and the double tier of flying buttresses of the nave. The



Gothic Steeple

last named are moreover of unusual construction, each consisting of two parts, the upper strengthened by an arcade with round-headed arches, springing from massive stunted piers, that seem to connect the advanced Gothic of the rest of the building, with the late Romanesque style.

The Cathedral of Rheims is another typical Gothic building with a western façade, the deeply recessed central portal of which is especially fine, resembling those of Notre Dame, Laon, and Chartres; a remarkably effective central tower that rises nearly sixty feet above the high-pitched roof; a well-developed chevet, a walled-in triforium similar to that of Chartres, a noble series of clerestory and several grand rose windows filled with very beautiful stained glass.

In the Cathedral of Amiens French Gothic architecture touched its highest point of excellence, before the over exaggeration of its distinctive peculiarities sounded the note of decadence. Begun in 1220, when all the structural problems of the pointed style had been finally solved, it was completed in 1272, and although it has more than once been seriously injured by fire, it has been so successfully restored that it still remains one of the noblest churches of Europe, the one thing detracting from the solemn beauty of its general external appearance being the later Flamboyant spire, that is quite out of character with the rest of the building. Its great height and breadth; the symmetry of its proportions; the dignified simplicity of its vaulting, which in nave, aisles and transepts, chevet chapels and ambulatory is of similar design, the centre from which the ribs radiate being in every case so situated that these ribs are all of equal length; the grand sculptures and fine arcading of the great west front, the towers of which, though they differ in detail, harmonise well with each other; the exquisite statues and bas-reliefs of the transept portals; the combined strength and grace of the many flying buttresses; the admirable system of lighting, windows occupying the whole of the space between the main arcades of the nave and the roof; the beautiful and varied effects of perspective from many different points of view in the interior; with the minor detail of the marvellous carvings in the choir, justify the claim that Amiens Cathedral is the crowning glory of Gothic architecture and an ample vindication of its principles.

Gothic Clustered Column

In the contemporaneous Beauvais Cathedral, that was intended to rival that of Amiens in its height and in the ethereal lightness of its stilted arches, a convincing proof was given of the danger of carrying those principles too far, for the vaulting of the choir collapsed before the completion of the building, which, though it was restored and added to later, still remains unfinished. With it may be mentioned the Sainte Chapelle of Paris, the window tracery in which is very fine; the Cathedral of Coutances, which has a very fine central lantern tower—that is to say, one with windows that throw a light upon the centre of the interior of a building—and a beautiful tapering spire; and the Cathedral of Lisieux, with a very characteristic chevet and vaulting resembling that of the Cathedral of Amiens.

The Cathedral of Le Mans, already referred to in connection with its noble Romanesque nave, has a most beautiful late 13th century Gothic choir, with one of the finest chevets in France. The aisles, that at the western end of the building are single, develop at the transepts into a double circlet, with chapels radiating from them, whilst the choir has exceptionally fine 13th and 14th century stained glass windows. The general effect of the interior, in which the solemn dignity of the nave contrasts with the almost ethereal beauty of the choir and its surroundings, is most impressive, whilst the exterior with its graceful flying buttresses and pinnacles is equally fine.

The Cathedral of Bourges is another typical 13th century Gothic building which, though it is without the usual transepts, has a beautiful apse, the ambulatories of which have unusually wide spaces between the columns, double aisles flanking the nave as well as the choir and chevet, producing a unique impression of vastness, whilst the exterior is equally effective with its five grand western portals, a long main roof unbroken by towers or spires, and a series of steeply pitched supplementary roofs above the chapels of the eastern end.

Dating from the same period as the cathedrals just noticed is the fortified Abbey of Mont St. Michel, that has been again and again rebuilt, and in which the gradual evolution of the Gothic style in France can be well studied, especially in the lovely chapel justly called the Merveille or the Marvel, that, with its cloisters, is still much what it was when finished in 1228, whilst the Chatelet or Gate-house, with its massive round towers and the various abbatial buildings, such as the Salle des Hôtes or Guest-Hall, are equally characteristic of French domestic architecture of the same period. On the other hand the Abbey Church, that crowns the mount, has been so much restored and modified that little of the original structure

remains, except the crypt which, with its massive piers and arches and many supplementary chapels, is practically the same as that from which uprose the famous abbey, the building of which was a labour of love to so many successive abbots.

The Church of S. Pierre, Caen, which has a fine tower with a beautiful pierced spire, is a good example of the second period of the Gothic style in France, and at Rouen the Rayonnant and Flamboyant phases are exceptionally well illustrated. The Abbey Church of S. Ouen was built entirely in the 14th century, and, with its characteristic high-pitched roofs over each bay of the aisles, its lofty towers—those at the west end with tapering spires—its delicately sculptured portals, double tiers of flying buttresses, triple division of arcades, triforium, and clerestory in the nave, the number and beauty of its stained glass windows, its graceful clustered piers, that rise without a break from the ground to the springing of the vault, and its beautiful chevet, with its circlet of eleven chapels, is an epitome of all the most characteristic features of Gothic architecture.

The Church of St. Maclou in the same town is a fine gem of Flamboyant work, with its stilted arches, tapering spires and pinnacles, and lavish internal and external decoration, whilst in the Cathedral of Rouen can be recognised details of each of the three stages of French Gothic, combined with those of the later Renaissance. The western façade, laterel portals, towers, spires, and fine rose windows are typically Flamboyant, and the general view of the interior, with its long vista of nave and choir, its slightly pointed arcading, two tiers of which divide the nave from the aisles, and, above all, its simple but most effective vaulting, is essentially that of an early example of the pointed style, that of the Lady Chapel being especially effective.

Good secular examples of the Gothic style in France are the Palais de Justice and Hotel de Bourgtheroulde, both at Rouen, the Chateau of Coucy near Laon, the Hôtel de Cluny, Paris, the Chateau de Pierrefonds in Normandy, and, most characteristic of all, the House of Jacques Cœur at Bourges. It was, however, in Belgium that Gothic municipal and domestic architecture reached its noblest development, the great halls of the towns being remarkable for their dignified and massive appearance, and, except in the latest examples built after the decadence had set in, for the severe restraint of their ornamentation. Of rectangular plan, and several stories in height, with steeply pitched roofs, the gable ends adorned with many pinnacles, and the long sloping sides broken by dormer windows, contrasting with the rows of pointed-headed lights in the walls beneath, and lofty central tower of ornate design, these

noble buildings, of which those at Ypres, Bruges, Brussels, Ghent, and Tournai are the best, are the chief pride of the cities to which they belong. They rival in the affections of the people even the cathedrals of contemporary date, although those of Antwerp, specially noteworthy for its seven aisles, Louvain, the nave and transepts of which, as already stated, are Romanesque, whilst the choir is a fine specimen of Early Gothic, Brussels, Ghent, Louvain, and Liège are all noble structures, resembling those of France in general plan, though most of them are shorter and of greater width.

In Spain, as in France, Gothic architecture passed through three phases: the first, that prevailed in the second half of the 12th and the first of the 13th century, to a great extent the outcome of the Romanesque; the second that succeeded it and lasted until the beginning of the 15th century, distinguished by great dignity of structure and appropriateness of ornamentation; the last, that prevailed until nearly the middle of the 16th century, corresponding to a great extent with French Flamboyant, though it lasted longer and was considerably modified by Moorish influence.

To the first period of Gothic architecture in Spain belong the Cathedrals of Santiago de Compostella, of cruciform plan with a vaulted roof, semicircular headed arcades and windows, and an ornate western façade recalling that of Chartres; Zamora, Taragona, and the older of the two at Salamanca, the three last retaining the characteristic cimborio, or low dome, already referred to in connection with Romanesque work in Spain, rising from the intersection of nave and transepts, but of more complex structure than in earlier examples, the ribs of the vaulting being upheld by pendentives and the whole surmounted by a secondary dome of considerable height pierced with windows, and at Salamanca flanked by four circular towers. Unfortunately, in later Spanish ecclesiastical architecture this beautiful feature was abandoned, and the Cathedrals of Toledo, Leon, and Burgos are of the French type, with chevets, double aisles, clustered pillars upholding pointed arches, vaulted roofs, ornate decorative arcading, fine open triforia, and lofty clerestories. The exterior of that of Burgos is especially ornate, with three pinnacled towers, tapering open-traceried spires rising from those at the western end. In the 14th century the cruciform plan, which had so long prevailed, was replaced in Spain by one without either aisles or transepts; the buttresses that had previously been introduced outside the building to resist the thrust of the vaulting, were brought within the walls so as to make the nave one vast vaulted hall, flanked by lateral chapels as in the fine Cathedral of Gerona

and the Church of S. Maria del Pino at Barcelona. Later, however, this comparatively simple mode of structure was superseded by vast complicated buildings such as the Cathedral of Salamanca and that of Segovia, both dating from the 16th century, the vaulting of which is especially complicated, with very ornate ribs, whilst the towers closely resemble those of contemporaneous Moorish mosques.

The Gothic style, that was alike alien to the Italian temperament and unsuited to the Italian climate, never really took root in Italy, the soil of which was thoroughly impregnated with classic traditions. The horizontal cornice, so characteristic of Greek and Early Roman architecture is of frequent occurrence, the round arch was long retained in combination with pointed highly-pitched roofs, and spires are rare, whilst the beautiful groined vaulting, the flying buttresses, and the exquisite window-tracery, that lend so great a charm to the cathedrals and churches of France and England, are very seldom met with. There was no gradual evolution in Italy from Early to Late Gothic, and for this reason it is usual to treat Italian buildings in the pointed style in three geographical instead of chronological groups, namely, the northern, central, and southern. To the first belongs the Cathedral of Milan, the largest Gothic building in Italy, the exterior of which is somewhat spoiled by its over-decorated western façade, though the effect of the long rows of lateral pinnacles, the numerous flying buttresses, the low conical dome and lofty spire is very fine. The interior, with its vast nave, double aisles, and complex apse, its lofty piers, with capitals consisting of life-sized figures in niches, and its noble clerestory, presents an appearance of grandeur unequalled by any other Gothic church in Italy. The Certosa or Carthusian Monastery, the façade of which is a century older than the rest of the building; the Churches of S. Maria del Carmine and S. Michele, both at Pavia, the latter with a very typical campanile; the Cathedral of Genoa; the Churches of S. Anastasia and S. Zenone at Verona, are all good examples of Italian-Gothic, whilst amongst secular buildings in the same style in Northern Italy, the Ducal and other palaces at Venice, such as the so-callad Ca' d'Ora are remarkable for the beauty of their proportions, the effectiveness of their window-grouping, and the general appropriateness and grace of their decorative details, especially of their balconies.

In Central Italy the Cathedrals of Florence and Siena are specially typical, the former, with its dome of considerably later date than the rest of the building, contrasting with the Campanile or Bell Tower named after Giotto, the latter being noteworthy for the combination of a dome with pointed

arcading and horizontal cornices, and the association on the west front of rounded with stilted arches, the last a peculiarity also of the cathedral at Orvieto, the façade of which is one of the most beautiful in Italy.

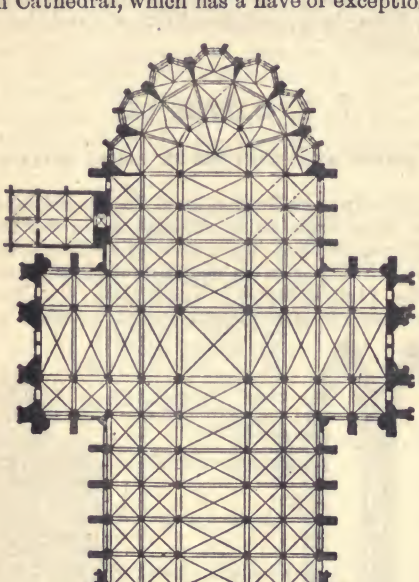
The Gothic work of Southern Italy is far more florid than that of the rest of the peninsula, and this is equally true of that of Sicily. In the churches of both, as in the earlier Romanesque buildings already noticed, Saracenic, Greek, and Roman influences are alike noticeable, especially in those of Naples and the Cathedrals of Palermo, Monreale, and Messina, the three last named combining the pointed arch destinctive of Gothic, with the elaborate surface decoration so characteristic of the Norman style.

German architects did not adopt the pointed arch until considerably later than those of the south and west of Europe, but to atone for this they delighted in highly pitched roofs with stilted gables, and lofty towers, with pointed roofs and tapering spires. The exteriors of their buildings differ very greatly from the interiors, in which the round-headed windows and semicircular arches of the Romanesque style are retained, enriched, however, with beautiful and ornate carving. The term round-arched Gothic is therefore often applied to the earliest phase of the style in Germany, of which good examples are the Churches of the Holy Apostles, of S. Martin and S. Maria in Capitolo, all in Cologne, the Abbey Churches of Arnstein and Andernach and the Liebfrauenkirche at Trèves, the last built on the foundations of a much earlier chapel.

The second phase of Gothic architecture in Germany, in which the pointed arch was substituted for the semicircular, did not begin until the second half of the 13th century. To it belong the greater part of the Cathedral of Strasburg, which combines, with much beautiful Romanesque work, a typical Gothic façade with a fine open tracery spire, a companion to which was designed but never erected. The Cathedral of Freiburg, with a graceful and ornate spire, the Church of S. Stephen at Vienna, with aisles almost as lofty as the nave, portions of the Church of S. Sebald, Nuremberg, the decorative sculpture of which is remarkably fine, and, above all, the Cathedral of Cologne, the noblest example of German Gothic, with an exceptionally symmetrical plan, which in spite of the fact that the building extended over more than a century, and that the west point was only completed in the 19th century, was not departed from, so that it remains a unique specimen of mediæval design. It has a noble nave, double aisles, one of which is continued round the eastern apse and is divided into seven chapels, forming a picturesque chevet. Massive

towers with a tapering central spire and many pinnacles flank the western entrance, elaborately decorated buttresses break the long lines of the walls, and from the intersecting nave and transepts rises a slender but most effective spire.

To the third period of Gothic architecture in Germany belong Ulm Cathedral, which has a nave of exceptional height;



Plan of Cologne Cathedral

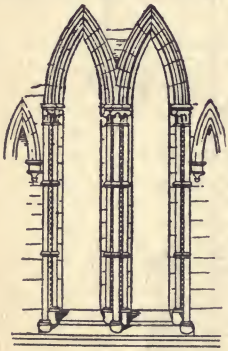
the unfinished Church of S. Barbara at Kullenberg, with a very picturesque chevet, the exterior of which is most lavishly decorated, and a steeply pitched roof of unusual height, with soaring towers and pinnacles; S. Catherine at Oppenheim, the over ornate complex decorative carvings of which are specially typical; and the parish Church of Thaun, the western portal of which is remarkably fine.

With these ecclesiastical buildings may be named the town halls of Lübeck, Brunswick, Münster, and other German towns, which, though they are neither so beautiful or so characteristic as those of Belgium, are of noble and symmetrical proportions, whilst a word of recognition must also be given to the beautiful domestic architecture of Germany, especially that of Prague, Nuremberg, and Frankfort all rich in survivals of mediæval times.

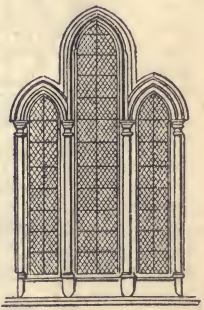
CHAPTER IX

GOTHIC ARCHITECTURE IN GREAT BRITAIN

GOTHIC architecture in England and Scotland followed to some extent the same lines as in France, with, however, certain notable differences that were the outcome of the national feeling which had begun to make itself felt as early as the close of the 11th century. Until then the Normans had remained a distinct and alien element in what appeared to



Early English Lancet Window



Early English Window

them a foreign land, but now they had become fused with the natives of that land, sharing their æsthetic as well as their political aspirations. The note of change was first sounded in the architecture of the now united races in a rebellion against the heavy massiveness of the Norman style, and a desire for a greater redundancy of what may be called structural decoration in place of extraneous surface ornamentation. The general proportions of buildings gradually became slenderer, the walls

loftier, the windows longer, the piers and columns slighter, and the arches more pointed, these peculiarities becoming more and more accentuated as time went on, till they culminated in the noble and exquisitely beautiful cathedrals and churches that vied even with the best of those of Northern France.

It is usual to divide the development of English Gothic architecture into three periods: the Early English, the Decorated, and the Perpendicular—the first prevailing from about 1189 to 1307, the second from the latter date to 1380, and the third from 1380 to 1485, whilst the name of Tudor has been given to the transitional time between the last phase of Gothic and the introduction of the Renaissance style, lasting from

Early English Capital

1485 to about 1546. It must, however, be added that hardly any buildings exist belonging entirely to one period, architects having in almost every case been compelled to be content with adding to or modifying the work of their predecessors.

Amongst the characteristics of Early English architecture are groined vaulting with main diagonal ribs only, long narrow lancet-headed windows, clustered piers with capitals consisting generally of delicately carved foliage, pointed arcading, the archivolt or arched portion enriched with mouldings, in which the ornament known as the dog-tooth is of frequent occurrence, ornate yet dignified western façades with deeply recessed doorways decorated with slender columns and beautiful bas-reliefs, high pitched roofs with stilted gable ends, lofty towers and spires, and plain buttresses ranged in pairs at the angles of buildings.

The Early English lancet window has a unique significance

in the development of Gothic architecture this side of the Channel, for it inaugurated an important structural change, its constantly increasing length aiding greatly in the breaking up of the triple division of walls—supposed by some to have been emblematic of the Holy Trinity—with arcading, triforium, and clerestory. By slow degrees the triforium was first reduced to a mere decorative feature, and then eliminated altogether, whilst the clerestory usurped its place in addition to its own.

Early English Capital

Early English Capital

Base of Early English Pillar

In Decorated buildings the windows are larger and divided into a greater number of lights than in Early English, the heads being filled with tracery of geometrical design ; the façades are more complicated and at the same time less effective, the towers and spires are loftier and supplemented by many pinnacles and finials, flying buttresses are multiplied ; parapets with pierced

Capitals of Early English Clustered Pillar

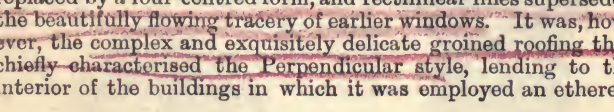
openings, canopied niches containing figures and other purely decorative features give to the exteriors a great richness of general appearance. In the interiors the simple Early English vaulting is superseded by roofs divided into a great number of different compartments, the points of intersection being marked by stone bosses or masses of carving, whilst increased lavishness of decoration characterises every portion of the building,

mouldings of a great variety, amongst which the ballflower is of frequent occurrence, being introduced wherever possible.

In Perpendicular Gothic, as its name implies, the vertical tendency became ever more and more marked; towers, spires, and pinnacles became more and more numerous, all decreasing in bulk and increasing in height. Turrets with many airy finials, springing from flying buttresses that were adorned with figures

Early English Ornaments

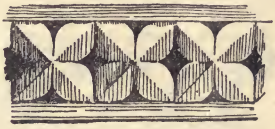
of lions, dragons, and other symbolic creatures, rise above equally ornate parapets, the dignified single-centred arch was replaced by a four-centred form, and rectilinear lines superseded the beautifully flowing tracery of earlier windows. It was, however, the complex and exquisitely delicate groined roofing that chiefly characterised the Perpendicular style, lending to the interior of the buildings in which it was employed an ethereal



Early English Ornaments

charm that has never been surpassed. In the so-called fan-tracery roof, that was the culmination of this distinctive form of vaulting, the entire surface of the roof is covered with radiating ribs resembling the sections of an outspread fan, connected by bands of trefoil or quatrefoil ornament known as cusping, and, in some cases—notably in that of Henry VII's chapel at Westminster—with pendant stalactite ornaments drooping from

the point of intersection of the groins. In some Perpendicular buildings, as in the Churches of S. Stephen and S. Peter's Mancroft at Norwich, ornate open timber roofs, enriched with beautiful carving, take the place of those of stone, and in the final or Tudor phase of the style such roofs, to which the name



Early English Dogtooth Ornament

of hammer beam has been given, and of which those of Wolsey's Great Hall at Hampton Court and of Westminster Hall are good examples, were almost as elaborate as the fan tracery variety. Characteristic features of secular Tudor buildings are the extensive use of panelling, the bow or projecting window rising direct from the ground, the oriel window or window sup-

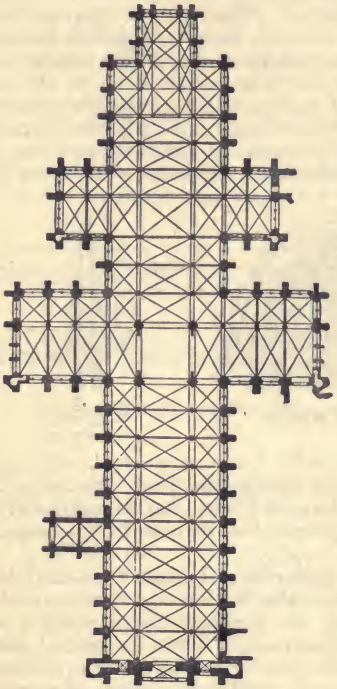
Early English Arcading

Early English Doorway, Westminster Abbey

ported by a corbel of stone often finely carved, battlements with open tracery work and richly decorated gables, fine specimens of all of which are to be seen at Hampton Court Palace.

One of the earliest Gothic structures in England is the choir of Canterbury Cathedral, designed by the Burgundian Williams of Sens, which recalls in general style certain contemporane-

ous French ecclesiastical buildings. Foreign influence is also noticeable in the somewhat later Ripon and Chichester Cathedrals, but by the beginning of the 13th century English Gothic had freed itself almost entirely from the trammels of French traditions, and started forward on the path from which it never deviated, combining a consummate mastery of struc-

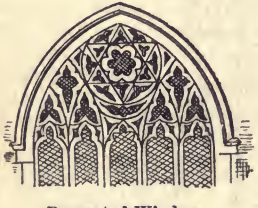


Plan of Salisbury Cathedral

tural principles and an unwearying attention to detail with a unity of expression that makes an English Gothic church or cathedral an ideal reflection of the spirit of the age which witnessed its erection.

The Cathedrals of Wells, Lincoln, and Salisbury, the choir of Ely Cathedral, and the choir, transepts, and part of the

cloisters and other details of Westminster Abbey, are typical examples of the Early English phase of Gothic. The first named especially is unrivalled in the symmetry of its general proportions and the richness and appropriateness of its decorations. Its western façade rivals that of Amiens Cathedral in the restrained dignity of its general design, the delicacy of its decorative arcading, and the number and variety of its finely sculptured figures. The central tower, though its upper portion belongs to the Decorated period, harmonises well with the rest of the exterior, whilst the interior is truly a poem in stone, with the long perspective of the nave flanked by graceful arches, springing from clustered piers with capitals of exquisitely carved foliage, noble triforia and clerestories, and a simple arched vaulting of intersecting ribs. The transepts, that are of earlier date than the nave, serve as a kind of introduction to it, and in the choir the transition from Early English to Decorated Gothic can be well studied, the western portion dating from the 12th and the eastern from the 13th century.



Decorated Window

Decorated Pinnacle

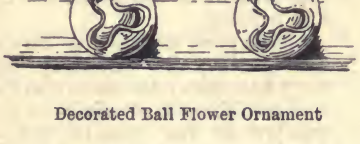
Decorated Capital

Though the exterior of Lincoln Cathedral is of a somewhat hybrid character, the towers and doorways of the west front being Norman, the arcading and decorative sculpture Early English, and the central tower Decorated. the general effect is grand and impressive. The interior, though not quite so ornate as that of Wells, is almost as beautiful, the great rose windows being specially noteworthy features. The so-called Angel Choir, which has a very fine triforium, is a gem of Early English work, and the three 15th century chapels adjoining it are equally characteristic of Perpendicular Gothic.

The beautiful Early English choir of Ely Cathedral contrasts forcibly with the noble Norman nave, and the so-called Galilee Porch is one of the finest examples of the first phase of Gothic in the country, but the exterior of the building has been

almost entirely rebuilt, the great central tower, which fell in 1322, having been replaced by the present one in the Decorated phase of Gothic. The Early English portions of Westminster Abbey closely resemble the other examples of the style just quoted, though the bays of the choir are not so well proportioned as those of Lincoln. Before the 15th century additions to Salisbury Cathedral and the sweeping away of the statues and other sculptures that adorned its west front, it must have been almost as typical as that of Lincoln or of Wells of the Early English style, and it still remains, in its rectangular plan and square eastern termination, a true representative of the ideals of native architects.

The transepts of York Minster, in one of which is the famous window with lancet-headed lights, known as the Five Sisters, is a good example of the transition from Early English to Decorated Gothic, and the same may be said of portions of the



Decorated Ball Flower Ornament

ruins of Hexham Abbey, the Saxon crypt of which has already been referred to, notably of the transepts with windows resembling those of York Minster, and of the many relics of the noble monastic buildings of Yorkshire, including those at Ripon, Jervaulx, Rivaulx, and Whitby. The Cathedral of Glasgow is another beautiful building in the first phase of Gothic, the choir, beneath which is a noble crypt of earlier date, being especially fine, and with it must be named the ruins of the great abbey churches of Kelso, Jedburgh, and Dryburgh, that have distinctive Norman as well as Early English details.

The first half of the 14th century was the golden age of English architecture, during which the Decorated gradually grew out of the Early English style, the two being in many cases so completely merged in each other that no break is discernible. The foundations of a truly national style had been laid in the Cathedrals of Wells and of Lincoln, in which originality of design was combined with consummate technical skill of execution, and in the buildings that succeeded them, architect and craftsmen still worked together in complete

harmony. The wealth of imagination of the latter found its best expression in emphasising the structural lines of the noble conceptions of the former; niches, with their figures, cusping, finials and crockets, ball flowers and bosses, all becoming essential details of one harmonious whole.

The nave and choir of Exeter Cathedral are especially typical of Decorated architecture at its best. They rise from the foundations of an earlier church, of which the Norman towers above the transepts are relics, and are absolutely unsurpassed in the simple dignity of the arcading spanning the clustered piers, the exquisite beauty of the groined roofing, the bosses of which are decorated with delicate carvings of a great variety of subjects, and the fine tracery of the windows. Unfortunately the general effect of the exterior, in spite of the fine Norman towers and the beauty of the decorative sculpture of the west front, is inferior to that of the interior, a 15th century porch harmonising ill with the earlier work, whilst the breadth is too great for the height of the building.

Decorated Steeple

Other good examples of Decorated Gothic are the Church of St. Mary, Oxford, with a very fine spire; the nave and chapter-house of York Minster, which has a very beautiful window at the western end, the flowing tracing of which is specially distinctive of the style; the choir of Lichfield Cathedral, which has, however, certain Early English details; the choir of Carlisle Cathedral, with an exceptionally beautiful eastern window of nine lights with elaborate tracery; the Lady Chapel of Wells Cathedral; the crypt, all that is left of St. Stephen's, Westminster, now used as a chapel of the Houses of Parliament, the lantern tower of Ely Cathedral; the ruins of Tintern and Battle Abbeys, with those of Melrose Abbey, which has also characteristic Perpendicular features. To the same period as these ecclesiastical buildings belong the Round Tower at Windsor, the Hall of the Bishop's Palace at Wells, Conway, Caernarvon, and Chepstow Castles, all recalling Norman domestic architecture in the general massiveness of their structure, that is relieved by the comparative lightness of such details as the doors and windows.

Unfortunately the second half of the 14th century was marked by a tendency to destroy or obliterate the characteristic details of Early English and Decorated buildings, a

notable example of which is Gloucester Cathedral, the beautiful eastern apse of which was pulled down, whilst the piers and walls of the rest of the building were concealed

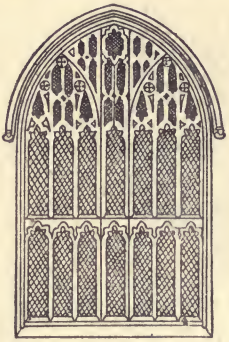
Hammer Beam Roof

as much as possible, the barbarism being, it must be owned, atoned for to some extent by the addition of a noble eastern window in the Perpendicular style. The nave of Westminster Abbey, on the other hand, begun just after the restoration of Gloucester Cathedral was completed, harmonises well with the earlier choir, and may be quoted, with the choir of York Minster and the naves of Canterbury and Winchester Cathedrals, as examples of the transition from the Decorated to the Perpendicular styles. To the final phase of the latter belong Beverley Minster, the Cathedral of Chester, and the Abbey Church at Bath, the western façades of all of which are very fine, but it was in Henry VII's Chapel, Westminster Abbey, King's College Chapel, Cambridge, and St. George's Chapel, Windsor, with those of Holyrood and Roslyn in Scotland, that the style reached its fullest development. That development was, alas, however, all too soon followed by a decadence that was ushered in by an employment of too lavish and often meaningless ornamentation which had nothing to do with structural necessities.

Perpendicular Roofing

Westminster Chapel, in addition to the characteristic fan-tracery roof already referred to, has an exceptionally beautiful chevet with five apsidal chapels, a finely vaulted nave,

aisles, and cloisters, in which Decorated and Perpendicular details are harmoniously combined. King's College Chapel, Cambridge, and St. George's, Windsor, are both entirely in the



Perpendicular Window

Perpendicular Niche

Perpendicular style, whilst the Scotch examples quoted above are specially noticeable for the contrast their massive pillars and arcades present to the airy lightness of their vaulting.

Less important Perpendicular ecclesiastical buildings are the parish churches of Blakeney and Cley in Norfolk, the former with a specially fine east window, the latter unfortunately almost in ruins, but notable on account of the beauty of the decorative carving; the parish church of Fairford, Gloucestershire, the stained glass windows of which are amongst the finest in England; and Christ Church College, Oxford, in which town, by the way, Gothic traditions lingered longer than anywhere else in England.

Corbel

Notable secular buildings in the latest phase of English Gothic are Westminster Hall, and the earlier portions of Hampton Court Palace, whilst Longleat Palace, Wiltshire, and Christ Church Hall, Oxford, with a fine open timber roof, are good examples of the transition from the Gothic to the Renaissance styles, the general plans belonging to the former and the decorative details being Italian in feeling.

CHAPTER X

RENAISSANCE ARCHITECTURE IN EUROPE

THE term Renaissance, signifying revival, has been given to the style which succeeded the Gothic. It was, to a great extent, a reversion to classic ideals modified to suit modern requirements. Its leading characteristics are simplicity of plan, symmetry of proportion, and massive grandeur of general effect, a minor peculiarity being the lavish use of plaster, not only for surface decoration, but also in some cases for the actual structure of such details as cornices, &c.

The Renaissance style was inaugurated in Italy, where, as already stated, the Gothic never took root, and spread thence to the other countries of Europe, assuming in each country a certain distinctive character of its own in harmony with its

Example of Renaissance Ornament

environment. In Italian Renaissance ecclesiastical architecture the old basilican plan was revived, the dome became again, as in ancient Rome, the crowning glory of the building, and was combined with horizontal entablatures upheld by columns, with capitals of one or another of the Greek orders, and porticoes with pediments. In secular Italian Renaissance a very notable feature is the central cortile or courtyard surrounded by open arcades, above which are the principal apartments, of style corresponding with that of the arcades, the round-headed windows being divided from each other by slender pilasters, and the spandrels above them filled in with sculptured ornamentation. The principal façade of Italian palaces was especially ornate, richly decorated courses

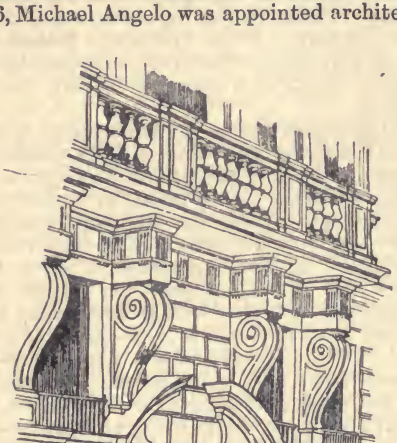
of stone dividing the stories from each other, in which the fenestration or grouping of the windows was peculiarly effective.

Whereas in the history of mediæval architecture few names emerge from the obscurity in which those who planned and erected the great cathedrals, churches, and castles were content to remain, in that of Renaissance the individual architect comes to the front, all the designing having been done by him and the whole work carried on under his personal superintendence. In the new movement Florence took the lead, owing the pre-eminence she quickly won to the gifted and versatile Filippo Brunelleschi, who, like so many of his famous contemporaries, was a skilled goldsmith and sculptor before he became an architect. His first work of importance was the dome he added to the unfinished cathedral of his native city, which was soon succeeded by the Churches of S. Spirito and S. Lorenzo, both of which are typical Renaissance buildings, as is also the Puzzi Chapel, on which the architect displayed his wonderful sense of symmentry, combining domes, arches, and lintels with consummate skill.

Fine examples of Renaissance secular architecture in Florence are the Riccardi and Pitti Palaces, both designed by Brunelleschi, but considerably modified after his death, the Rucellai Palace by Alberti, a worthy successor of Brunelleschi, the Guadagni Palace, designed by Bramante, and the Pandolfini, designed by Raphael, the last very characteristic of the mature phase of Italian Renaissance.

It was in Rome that the style reached its noblest development, and the Cathedral of S. Peter's, on which all the greatest architects of the 16th and 17th centuries were successively employed, affords a unique opportunity for its study. Built on the site of the old basilica of S. Peter, alluded to in the section on Early Christian architecture, what was to become the largest church in the world was begun by Bramante in 1506. His plan, that of a square with four projecting apses, to be covered in with a central and four supplementary domes, was followed until his death in 1514, when the work was carried on by Giuliano da San Gallo, Fra Giacondo and Raphael, who were in favour of certain modifications of the original design, that if carried out would have converted the square into a Latin cross. The withdrawal of San Gallo, and the deaths of Giacondo and Raphael in 1515, led to Baldasarre Peruzzi being appointed architect, and under his auspices the plan was changed to that of a Greek cross. Before his death in 1536 the present south transept and the vaulting, that was to encircle the central dome were finished, and the massive pen-

dentives that were to uphold the latter were begun. The next architect to take up the vast scheme was Antonio da San Gallo, who, could he have obtained the necessary funds, would have added a long pronaos or corridor of approach, to be entered from a domed porch at the western end. In his model the interior of the central portion of the cathedral, with the notable exception of the dome, appears much as it does now, so that with its aid a good idea can be obtained of the state of the building when, in 1546, Michael Angelo was appointed architect in chief,



Façade of a Venetian Palace

and set the seal of his genius upon a complex creation which was already a reflection of the highest constructive and æsthetic achievement of the golden age of Italian architecture. Reverencing the noble design of Bramante, Michael Angelo left the interior, of which the symmetry of plan and beauty of the many pilasters with their Corinthian capitals are notable characteristics, much as he found it, but though he introduced on the exterior Corinthian pilasters resembling those of the interior, he greatly modified the general aspect of the former by the removal of the projecting chapels and the aisles round

the apses. It was in his design for the dome that Michael Angelo achieved his greatest architectural triumph, for without tampering at all with what had already been done by Bramante, he set upon the cylindrical drum that artist had intended to uphold a dome, which was to be a mere reproduction of that of the Pantheon, a magnificient structure of original design which dominates the capital, producing an absolutely unrivalled impression of combined strength, vastness, and symmetry, the eye being irresistibly led up from drum to dome and from dome to lantern. From within the cathedral the effect is scarcely less grand, a wonderful sense of space being conveyed by the soaring vault, that seems to spring heavenwards of its own volition.

Michael Angelo died before his masterpiece was completed, but so far as the dome was concerned his design was carried out, with certain slight modifications, by Giacomo della Porta and Domenico Fontana. Unfortunately, however, the rest of the great architect's scheme was departed from and its effectiveness destroyed by additions which he would most certainly have condemned. At the suggestion of Pope Pius IV the façade built under Michael Angelo was pulled down and replaced by Maderno with that still *in situ*, whilst the nave was lengthened out of all proportion to the rest of the building.

In spite of this lamentable mistake, the general effect of the interior is remarkably fine, and is greatly enhanced by the rich colouring of the lavish decoration of every portion, the massive piers and vast arches spanning them, and the vaulted coffered ceilings, all harmonising with and supplementing each other. Moreover, the unhappy result of the substitution of Maderno's for Michael Angelo's façade was to some extent neutralised in 1666 by the erection under Bernini of the lofty colonnade encircling the piazza of S. Peter in the simple and dignified Doric style, that forms an appropriate approach to the cathedral.

In the Renaissance palaces of Rome classic details were more closely copied than in Florence, pilasters and arcades forming, in almost every case, the chief decorations of the exteriors. Notable examples are the so-called Venetian Palaces, the Cancellaria designed by Bramante, the Sacchetti by Antonio San Gallo, and, above all, the Farnese, the grandest in the capital, begun by San Gallo and completed by Michael Angelo, with portions of the Vatican, including the Hall of the Belvedere, designed by Bramante.

In Venice, where the Renaissance style was necessarily modified by the peculiar conditions of the lagoon city, good examples of it are the Churches S. Maria dei Miracoli, S. Zaccaria,

and S. Maria della Salute, with the palaces of Vendramini, Calergo, Trevisano, and Cornaro, all, however, excelled by the beautiful Palazzo Grimani designed by San Michele and the Library of S. Mark of Sansovino.

At Vicenza the famous architect Palladio erected many noble Renaissance churches, including the Redentore, enclosed the ancient Basilica in grand classic arcades, and designed a great number of fine palaces. In Milan the finest Renaissance structures are the sacristy of S. Maria Presso S. Sabino, the apse of S. Maria della Grazie and the arcaded court of the great Hospital, all designed by Bramante. Near Pavia is the fine Certosa, the façade of which is the work of Ambrogio Borgognoni; Genoa is rich in effective groups of Renaissance palaces after the designs of Alessio, and owns a late Renaissance church ascribed to Puget, and at Verona is the typical Palazzo del Conseglio, built by Fra Giocondo.

It was not until the beginning of the 16th century that the Renaissance style gained a footing in France, and even for some time after that French architects, whilst adopting its main features, clung to certain characteristic Gothic details. This is very notably the case in some of the royal chateaux on the Loire, justly considered the finest secular Renaissance buildings in the country, especially in that of Chambord, which, with a typical Renaissance façade, has a highly pitched roof with soaring pinnacles and pointed-headed dormer windows.

Other fine Early Renaissance French buildings are the wing added by Frances I to the old castle of Blois, famous for its beautiful external spiral staircase, the chateaux of Chenonceaux, Chateaudun, and Azaz-le-Rideau, the Hôtel de Ville at Beaugency, the Church of S. Eustache, the Hôtel des Invalides, the western portion of the Louvre, and the Luxembourg, all in Paris. To the latest phase of what eventually became almost a national style, belong the Pantheon, the Palais Royal, the College and Church of the Sorbonne, all in Paris; the relics of the noble Chateau built for Richelieu on the site of the great minister's native village by Lemercier, the Chateau of Ballery in Normandy, the additions to the castle of Blois, the Chateau des Maisons near, and the Church of Val de Grace in Paris, all by François Mansard, whose name is associated with a picturesque form of roof invented by him.

In the chateau of Versailles, designed by Jules Mansard, a distant connection of the greater François, the first note of the decadence of the Renaissance style was sounded, for well-built and richly decorated though it is, the huge structure is lacking in the dignified grandeur, so distinctive of the buildings enumerated above.

Although it was in Italy and France that European Renaissance architecture achieved its greatest triumphs, some few fine examples of it remain in other countries, including in Spain the great Monastery and Palace of the Escurial near Madrid, the central church of which is especially fine, the Cathedrals of Burgos, Malaga, and Granada, the town halls of Saragossa and Seville, and portions of the Alcazar of Toledo, the convent of Mafra in Portugal, the Town Hall of Antwerp, the Council Halls of Leipzig and Rothenburg, the Cloth Hall of Brunswick, the Castle of Schallenburg, and the Hall of the Belvedere at Prague.

It is unnecessary to refer in detail to the many buildings in Europe in what is known as the Rococo style, of which grotesque and meaningless ornamentation is the chief characteristic, but it must be added that in the early 19th century something like a new classic revival took place on the Continent. The Church of La Madeleine and the Opera House in Paris, the Arco della Pace at Milan, the Royal Theatre at Berlin, the Glyptothex and Pinacothex of Munich, the Walhalla at Ratisbon, the Museum of Dresden, and the Church of S. Isaac at St. Petersburg being notable instances of the skilful way in which Greek details of structure were combined by the best architects with modern requirements.

CHAPTER XI

RENAISSANCE ARCHITECTURE IN GREAT BRITAIN

It was only by very slow degrees that the Renaissance style was introduced into England, native architects and those for whom they worked having clung with almost pathetic devotion to the traditions of the past. At the end of the 15th century the Gothic style was still in full vigour on this side of the Channel, and although early in the 16th century it was to a great extent modified by the influence of the foreign artists who were attracted to the court of Henry VIII by the lavish patronage of the young monarch, it continued to the end of the century to check the development of pure Renaissance, the two styles to a great extent neutralising each other.

It is significant of the change of the attitude of rulers and ruled towards religion that took place in England during the 16th and 17th centuries, that it was no longer in churches and cathedrals that architecture achieved its greatest triumphs, but in palaces, manor-houses, colleges, and places of public

entertainment. No longer was the soaring Gothic style to voice in stone the aspirations of worshippers for closer intercourse with the divine; the best energies of architects were henceforth to be directed to the promotion of comfort and luxury in private life, and for the realisation of this comparatively ignoble aim the revived classic style was peculiarly adapted. True, the spirit of the Renaissance did not display itself so fully in architecture as in other branches of human endeavour,

Portion of Lilford Hall, Northants

but for all that its working was very apparent, assuming a certain character of its own in England.

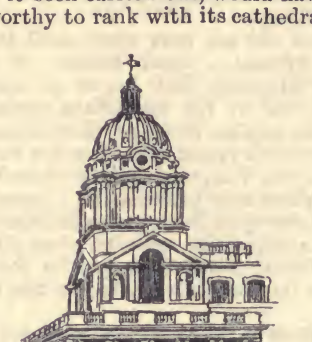
First Italians, amongst whom the most distinguished were Torregiano, designer of the tomb of Henry VII in Westminster Abbey, Giovanni da Majano, and Giovanni da Padua, the architect of Longleat in Wiltshire, then Flemings and Germans, none of whom, however, except John of Cleves, designer of Caius College, Cambridge, rose to any special eminence, endeavoured to graft their own upon English methods, succeeding with rare exceptions only so far as the minor details of ornamentation were concerned.

It is not to these men of alien birth but to the builders and masons of rural England that the country owes the many noble residences, dating from the late 16th and early 17th centuries, that, Gothic so far as their principles of construction are concerned, are enriched or spoiled, according to the point of view from which they are considered, by Renaissance ornamentation. Amongst these builders Thomas Holt, author of the Divinity School of Oxford, and Robert Smithson and John Thorpe, joint designers of Wollaton Hall, Northamptonshire, were especially distinguished. To the last named many critics also attribute Holland House, London, Rushton, Kirkby and Apethorpe Halls in Northamptonshire, and Knowle House in Kent, all of which are truly typical examples of English 16th or early 17th domestic or academic architecture at its best. To about the same period belong Lilford Hall, Northants, Westwood, Bolsover, Charlton, and Hatfield Houses, all somewhat wanting in the dignified simplicity of plan of the work of the men quoted above, but with an undoubted charm of their own.

The master-builders who alike designed and executed the many beautiful mansions and colleges of the Elizabethan age —with whom must be associated the later John Abel, designer of several fine market-halls, including those of Kingston, Hereford, and Leominster—may justly be said to have paved the way for Inigo Jones, the first Englishman to introduce pure Renaissance architecture into his native land. Already before his advent these humble predecessors had partly evolved, out of the mediæval castle and the mediæval cottage, what was to become the typical English home, bringing about something like a revolution in planning by the innovations introduced by them with a view to admitting more air and light, and rendering access to the upper floors easier by the substitution of an internal staircase, for the external flight of steps leading up to each separate room hitherto the fashion.

Gifted with a vivid imagination and a rare faculty of design, Inigo Jones succeeded in so adapting Italian ideals, especially those of Palladio, to English needs, that he may justly be said to have founded something approaching to a national style. Unfortunately few of the many schemes evolved by him were carried out in their entirety, but his plans and drawings prove him to have been the equal and, in some respects, even the superior of his great successor, Sir Christopher Wren. Of his grand design for the new Palace of Whitehall after the fire of 1619, the Banqueting Hall, considered his masterpiece, alone was completed, but he was the real architect of the equally successful Greenwich Hospital, for it was his plan that was followed after his death by Wren.

Although it is the custom to dwell much on the unique opportunity afforded to Sir Christopher Wren by the great fire of 1666, there is no doubt that even without it he would have set his seal on the period during which he lived. His additions to Hampton Court Palace are most dignified and appropriate, his semi-Gothic Tom Tower at Oxford well illustrates his keen sense of environment, and his design for a Royal Palace at Winchester, had it been carried out, would have given to that city a building worthy to rank with its cathedral. As it is, his



Portion of Greenwich Hospital

fame rests chiefly on his work in London, although the masterly scheme he drew up for the rebuilding of the whole town had to be considerably modified.

S. Paul's Cathedral, that dominates the vast agglomeration making up the modern capital, reflects, in its solemn and dignified beauty, almost as clearly as did a mediæval ecclesiastical Gothic edifice, the spirit of its age, during which the Puritan replaced the Roman Catholic ideal, and a rigid Protestantism became the religion of the people. Of noble and most harmonious proportions, S. Paul's is cruciform in plan, every portion of its exterior and interior subordinated to the great central dome, that, consisting as it does of an outer and inner vault, is equally impressive whether seen from within or from without. From whatever point of view, the dome, with its graceful lantern surmounted by a cross, remains the central feature of a structure at unity with itself, consistent in every

detail, the western towers and the great central portico with their appropriate classic pilasters and columns all being in complete and satisfying accord.

The Churches of S. Stephen, Walbrook, S. Andrew, Holborn, S. James, Piccadilly, S. Clements Danes, S. Bride's, Fleet Street, and Bow are amongst the finest designed by Wren. The steeples of the last three are especially noteworthy as the earliest examples in England of the use of that feature in Renaissance buildings.

Sir Christopher did not pass away until the 18th century, which was to witness a rapid decline of architecture in England. His influence had begun to wane even before his death, and few of his immediate successors, with the exceptions of his pupils, Nicholas Hawkesmoor, architect of S. George's, Bloomsbury, and other London churches of similar design, and Sir John Vanburgh, who designed Castle Howard and Blenheim Palace, rose to eminence. James Gibbs, designer of the Ratcliffe Library at Oxford, also did some good work; the brothers Adam successfully imitated classic forms in certain London and Edinburgh buildings, and Sir Robert Taylor won some distinction by the Halls erected by him in Herefordshire and Essex.

Towards the close of the century a classic revival inaugurated by Sir William Chambers, designer of Somerset House, took place in England, and it became the fashion to add a Greek portico to every important public or private building. Typical examples of the new departure are S. Pancras Church, London, that is a kind of compilation from the Parthenon, the Erectheum, and the Temple of the Winds at Athens, and S. George's Hall, Liverpool, a skilful adaptation of the design of a hall of one of the great Thermæ of Rome.

Early in the 19th century a reaction took place against the classic style, which was not really adapted to the English climate, and architects began to show a desire to revert to Gothic traditions. In this new movement Sir Charles Barry took the lead. The Houses of Parliament, in the latest phase of the style, considered his masterpiece, is specially successful in its general plan and in the picturesqueness of its exterior. With Sir Charles Barry must be associated Augustine Pugin, a man of fine genius and originality, with a genuine feeling for mediæval Gothic, Norman Shaw, and Bodley, all of whom have done much to leaven the utilitarian tendencies of modern times.

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